DOCUMENT RESUME

ED 475 434 JC 030 222

AUTHOR	Ashlock, Tim; Wright, Stephanie
TITLE	Students at the Learning Edge: Advanced Technological Education Programs at Community Colleges.
INSTITUTION	American Association of Community Colleges, Washington, DC.
SPONS AGENCY	National Science Foundation, Arlington, VA.
ISBN	ISBN-0-87117-342-5
PUB DATE	2001-00-00
NOTE	61p.
CONTRACT	DUE9908191
AVAILABLE FROM	Community College Press, One Dupont Circle NW, Ste. 410, Washington, DC 20036 ($21 non-members; $17 members). Web site: http://www.aacc.nche.edu.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	EDRS Price MF01/PC03 Plus Postage.
DESCRIPTORS	Community Colleges; Engineering Education; *Job Training; *Labor Force Development; Mathematics; Science Education; *Technical Education; Technological Literacy; *Technology Education; *Two Year College Students; Two Year Colleges

ABSTRACT

The National Science Foundation (NSF) implemented the Advanced Technological Education (ATE) program to strengthen the nation's technical workforce. ATE focuses on improving educational programs in science, mathematics, and engineering within community colleges. This book is one of several activities sponsored by an NSF grant to the American Association of Community Colleges. The authors tell the stories of 22 ATE students from 19 different community colleges. Some of the students and their projects follow: (1) Tori Parnell became the first woman to graduate from Florence-Darlington Technical College's ATE program. She and her classmates petitioned the administration to allow them to travel to sister colleges in order to gain a global perspective on engineering graphics; (2) The Ice Prowler is a specialty bicycle intended to allow transportation at nearly 100 degrees below zero. It was designed by ATE students (including Brian Case, who is profiled here) at the Art Institute of Pittsburgh. The Ice Prowler is being used at the South Pole; and (3) Carl Goin decided at age 58 to leave his banking career and pursue an education focusing on environmental sciences. He went to Paradise Valley Community College, Arizona, which has an environmental technology program. He now has a new career with the Arizona Department of Environmental Quality. (NB)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 475 434

Students at The Learning Edge: Advanced Technological Programs at Community Colleges

Tim Ashlock
Stephanie Wright

American Association of Community Colleges

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✔ This document has been reproduced as received from the person or organization originating it.

❑ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

D. CAREY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

JC 030 222

BEST COPY AVAILABLE

Students at The Learning Edge

Advanced Technological Education Programs at Community Colleges

JC030222

Tim Ashlock and Stephanie Wright

BEST COPY AVAILABLE

Students at The Learning Edge

Advanced Technological Education Programs at Community Colleges

Tim Ashlock and Stephanie Wright

This book is based upon work supported by the National Science Foundation under grant number DUE 9908191.

The authors acknowledge with gratitude the contributions of Victoria Bragin, Lynn Barnett, and Ellen Hause for their invaluable support.

The American Association of Community Colleges (AACC) is the primary advocacy organization for the nation's community colleges. The association represents 1,100 two-year, associate degree-granting institutions and some 10 million students. AACC provides leadership and service in five key areas: policy initiatives, advocacy, research, education services, and coordination/networking.

© 2001 American Association of Community Colleges

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including, without limitation, photocopying, recording, or by any information storage and retrieval system, without written permission.

Requests for permission should be sent to
Community College Press
American Association of Community Colleges
One Dupont Circle, NW
Suite 410
Washington, DC 20036-1176
Fax: (202) 223-9390

Edited by: Ellen M. Hause

Printed in the United States of America.

ISBN 0-87117-342-5

Contents

Foreword vii

1. Cutting-Edge Student Has an Impact on Pioneering Technology
(Travis Behara) 1

2. Designers Find Pasadena's Multimedia Program in Vogue
(Dolores Cameron, Joey Suing) 3

3. South Carolina ATE Program Builds Partnerships with Industry
(Tori Parnell, Mac Huntley) 5

4. Students' Design Gets Two Icy Thumbs Up from Antarctic Researchers
(Brian Case) 9

5. Fly Me to the Moon: Community College Student Assumes Key Role at NASA
(Jeremy Scott) 13

6. Retired Firefighter Trades Bunker Gear for Multimedia Career
(Wade Atwood) 15

7. Beyond Her Wildest Dreams: Unique Program Leads Young Scholar to Africa
(Denise Brijbasi) 17

8. Information Technology Student Lives Her Dream: Escaping the Shadow of War
(Jessica To) 21

9. Surfing Star Rides the Distance Education Wave from Prison
(Charlie Quesnel) 23

10. Student's Efforts Make Virtual Classroom a Reality
(Randy Eder) 25

11. Five-Week-Old Learns Valuable Lessons about Life
(Kelly and Malik Peoples) 27

12. 58-Year-Old Leaves Successful Banking Career to Make a Difference
(Carl Goin) 29

13. Stepping into the Computer Lab Means Stepping into the Future—and a New Career
(Cheyanne Lewis) 31

14. Former Football Star Becomes Technology Pro
(Dustin Gorman) 33

15. Community College Is a Family Affair for Networking Student
(Hosea Carter) 35

16. Technical Student's "Black Magic" Sends a Clear Message in Vermont
(Damien Thibault) 37

17. Breaking Down Barriers, Teaching the Teachers
(Devan Whitley) 39

18. Combining High School, College, and Career Gives Student Early Lead
(Katherine Carter) 41

19. More than a Change of Habit: Student Cleans Up the Environment
(Kathleen McLaughlin-Girelli) 43

20. Multimedia Program Opens Up New World to Globetrotting Student
(Roger Chatelain) 45

About the Authors 47

Index 49

Foreword

As part of their summer internship with the National Science Foundation, Tim Ashlock and Stephanie Wright had the opportunity to talk with outstanding community college students involved in various Advanced Technological Education (ATE) programs across the country. Ashlock and Wright, themselves community college graduates as well as members of the 2000 All-USA Academic Team and Phi Theta Kappa, adeptly took on the task of interviewing students, faculty, program administrators, and industry representatives to create an inspiring compilation of ATE student stories.

Recognizing the pressing need to strengthen the nation's technical workforce and the tremendous potential of community college students in helping to fulfill that vision, the National Science Foundation implemented the Advanced Technological Education (ATE) program in 1993. The ATE program focuses on improving educational programs in science, mathematics, and engineering at community colleges. Since its inception, NSF has funded hundreds of ATE projects and had a significant impact on thousands of community college students nationwide.

Students at the Learning Edge is a companion piece to *The Learning Edge: Advanced Technological Education Programs in Community Colleges*, published by the American Association of Community Colleges in 2000. *The Learning Edge* put a face on the ATE program by profiling selected projects and centers. This book puts a more personal face on the program by focusing on individual students. Ashlock and Wright tell the stories of 22 students from 19 different colleges—stories that exemplify the diversity and commitment to excellence found within the ATE program.

Crediting their ATE projects for placing them at the "learning edge" of technological education, these students, and thousands more across the country, have acquired the skills and experiences necessary to fulfill their goals of further education, career development, and personal enrichment. Denise Brijbasi, for example, learned the skills that would later lead her

to study lions in South Africa. Brian Case invented a device for transportation at the South Pole. Age was not a hindrance: Katherine Carter took advanced courses while still a high school student and Carl Goin made a major career change at the age of 58. Charlie Quesnel got a fresh start, on learning and on life, by taking online courses while serving a prison term. Though they are different, these 22 students share a dedication and sense of accomplishment that is an integral part of the ATE program.

The core of the ATE program is not found on classroom blackboards, in laboratory beakers, or in the technologically advanced networks that it supports. It is found on the faces of students discovering the personal satisfaction of acquiring new skills that give them the ability to make significant contributions in the classroom or in the workforce. For many, participation in an ATE project at a community college is an experience that leads not only to personal and professional development, but also to life-changing opportunities.

This book is one of several activities supported by an NSF grant to the American Association of Community Colleges. We are grateful for the foundation's continued support of community colleges and their students.

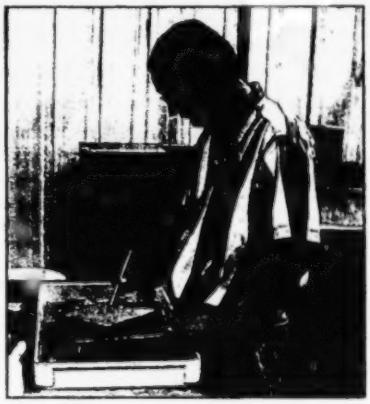
George R. Boggs
President
American Association of
Community Colleges

Cutting-Edge Student Has an Impact on Pioneering Technology

Travis Behara

One moment changed Travis Behara's entire future. From the moment he saw a rapid-prototyping machine and understood its possibilities, "I was hooked," he says. More important, the enthusiasm of that first exposure has never left him. Behara went on to become a "pioneering student" in Oklahoma State University (OSU)–Okmulgee's Distinctive Manufacturing Technology (DMT) program, seeking out advanced training beyond even his instructors' knowledge and leaving the program as its highest-paid graduate to date. Less than one year after completing his education, Behara has already had a "significant influence in the emerging technologies industry," say his former instructors.

Rapid-prototyping (RP), according to Behara, is "building something from nothing." It is exactly the opposite of the techniques used in the past, in which models were built by cutting away material. He and others in this relatively new field use additive manufacturing, joining layers measuring 0.003 inches thick to build tangible prototypes from computer-aided drafting (CAD) files. Now employed as a rapid-prototyping engineer, Behara uses his skills at a firm that designs and manufactures hardware for vehicle doors. Kevin Roths, a technology and marketing executive at the company, sees numerous benefits from rapid-prototyping. "It helps us to get products to market faster," he says. "It cuts down the conceptual part of the project and gives a clearer picture of styling and function."



Travis Behara cleans a prototype model made with a rapid-prototyping machine.

Student: Travis Behara

Institution: Oklahoma State University–Okmulgee
Okmulgee, Oklahoma

URL: www.osu-okmulgee.edu/dmt/index.htm

Field: Distinctive Manufacturing Technology

ATE Project: Preparing High-Performance Technicians in Distinctive Manufacturing: An Innovative Approach

Behara acquired the skills to be competitive in this arena at OSU–Okmulgee's newly developed program in Distinctive Manufacturing Technology funded by the National Science Foundation's Advanced Technological Education (NSF/ATE) program. "He was a pioneering student in our program," recalls Rick Allison of the DMT program. "We tried lots of innovative things and Travis took on the early challenges of new technology again and again."

BEST COPY AVAILABLE

Many of the faculty were not yet trained in advanced applications, so Behara took the initiative to seek out vendors and user groups across the country. From these sources, he was able to acquire knowledge and networking support that benefited the college as well as the community. "He applied what he had learned to working with our economic development group," Allison says. "Travis did pilot-testing for some of the entrepreneurial policies and procedures of local small companies. He helped them to address and solve their manufacturing problems. He had quite an impact on the business community."

The RP program provided Behara with the foundation that has made his dramatic success possible. "Without OSU, I would not be in my current position," he says. "The program taught me fundamental skills and gave me basic knowledge of the field."

Allison feels that the environment also was a perfect match for Behara. "He was able to thrive because it was an educational community where he could learn not only from instructors but also from his fellow students," he says. "We provided him with the tools and technology he needed to flourish, allowing him to match his abilities and interests to a field in which he could succeed." This philosophy has broader applications to the entire DMT program. "We've seen that when you can align interests and talents and place them in a learning atmosphere that is conducive to exploration, students will rise to the real-life challenges that you provide."

As significant as his technical course work was, Behara also notes the importance of the education he received in more traditional classes. "The community college taught me 'soft skills' such as teamwork, as well as writing, math, and communications skills. These have played a significant part in what I've been able to do." For other students interested in pursuing a similar career path, Behara suggests additional classes in material science, CAD, and computer science.

"It is important to note that he made all of this happen for himself," Allison comments. "Travis is innovative and tenacious—an excellent problem solver. He has a true entrepreneurial spirit." While in the RP program, Behara created a portfolio on a self-designed Web page. "He had job offers from all across the country as a result of that page," says Allison. "The company he works for contacted him because of it, too. Obviously, ultimate credit for all that he has done belongs to Travis."

"We've seen that when you can align interests and talents and place students in a learning atmosphere that is conducive to exploration, they will rise to the real-life challenges that you provide."

—Rick Allison, professor
Oklahoma State University–Okmulgee, Oklahoma

"He undoubtedly stood out as a potential employee," comments Roths. "His practical knowledge and the experience he had gained through the college in terms of RP programming was exceptional." In fact, the company created a position for Behara to produce RP parts and tools. "We feel very fortunate to have someone in a position like this," Roths says. "He demonstrates our commitment to technology."

Behara's commitment to advancing this technology has resulted in an RP Web site *www.rapid-discussion.com* that he designed and now maintains. The site, which Allison calls "one of the best resources for RP information on the Web today," allows others in the field to share discussion groups, news, and even classified ads for employment and equipment.

What does this husband and father of two see in his future? "I'd like to be the head of a rapid-prototyping division in a major corporation," he says. No doubt he will do just that.

BEST COPY AVAILABLE

Designers Find Pasadena's Multimedia Program in Vogue

Dolores Cameron, Joey Suing

Dolores Cameron wears many hats. This wife, mother, student, and fashion designer can add to those the title of multimedia graphics designer. Cameron is a recent graduate of Pasadena City College's Academy for Creative Technologies, a dynamic program designed to prepare diverse groups of students for the evolving field of multimedia technology. The curriculum for this industry-driven, interdisciplinary multimedia program was developed through funding from the National Science Foundation's Advanced Technological Education program.

Cameron left her career as a fashion designer in the lucrative Los Angeles market with no regrets. "The changing environment of the marketplace has made it increasingly difficult to create an original line of clothing and have it reach the marketplace. Buyers for major chains became more than merchandisers. They became stylists or designers themselves. Designing became 'What do I copy this week?' It was no longer fun. I felt creatively frustrated!"

Community college was a perfect fit for Cameron. "At the time I decided to go back to school," she says, "my son was an infant, scheduling was a factor, and the community college was nearby. I found going back to school very rewarding. It opened up areas to me of which I was previously unaware. Graphic design with the use of computers appealed to my meticulous nature. The more courses I took, the more I realized that there was a whole different world of computer technology that I wanted to learn about." Now an independent Web designer, Cameron hopes to

Graphic designer Dolores Cameron launched her own company.

Joey Suing takes a rare break from designing for a photo opportunity.

Students: Dolores Cameron, Joey Suing

Institution: Pasadena City College
Pasadena, California

URL: www.paccd.cc.ca.us

Field: Graphic Design

ATE Project: Academy for Creative Technologies (ACT)—An Interdisciplinary Interactive Multimedia Studies Program

BEST COPY AVAILABLE

continue the development of her home-based design business and foresees a day when she will employ three or four designers on staff.

"It was difficult to go back to school, share a learning experience with students half my age, and keep everything else going (home, work, kids, and family) at the same time," says Cameron. "But for those in a similar situation, I recommend that they keep it up because eventually, all that work pays off."

It certainly paid off for Joey Suing, lead Web designer for Citysearch.com. Suing, 25, another graduate of the multimedia program at Pasadena City College, now manages a team of 20 Web designers at Ticketmaster's Online-Citysearch Inc. Her team is responsible for the Web design of the "Cityguide" portion of Citysearch.com, a site that creates Web-based travel and entertainment guides for individual cities.

"The great thing about community colleges is you can take different kinds of classes until you find something that really interests you, without spending thousands of dollars. I feel I received as good an art education as I would have at a university or private school."

—Joey Suing, Web designer
Citysearch.com, California

About her decision to enroll at Pasadena City College, Suing says, "The great thing about community colleges is you can take different kinds of classes until you find something that really interests you, without spending thousands of dollars. I feel I received as good an art education as I would have at a university or private school." She shares the credit for her recent success with her former instructor, Laurie Burruss-Myers: "She is the teacher that made a difference in my education and career. Her inspiration and knowledge of multimedia have inspired me to become a great multimedia designer someday."

Burruss-Myers attributes these students' success to their attitudes and vision. "Dolores and Joey really took themselves seriously, a quality that separates the mature student from the immature student. They were rarely concerned about grades but rather asked, 'Is this work I would show to others as my best.' Both of these women live with visions and try to exceed themselves in every endeavor. They did this without alienating the class; on the contrary, they did it by bringing the other students, in a sense, along with them."

While Suing credits the program with giving her a solid technical foundation, she also emphasizes the interpersonal skills it helped her develop. "The project helped to prepare me by learning how to work with different types of people to achieve a common goal. I learned a lot about different media and how they can be used to communicate in new, effective, and exciting ways."

Joey Suing's advice to anyone considering a multimedia program for a career in Web design is to "develop great graphic and layout skills and an eagerness to learn new things. This is a fun, exciting, and rewarding field, and I would encourage anyone to be a Web designer." She adds that the program at Pasadena City College "opened my eyes to all the different types of jobs out there for a graphic designer. It not only prepared me with great multimedia pieces for my portfolio, it also taught me how to work in a project-based environment assuming the different types of roles a project could require, as well as how to work with people in a team environment."

Burruss-Myers comments on the potential of these outstanding students: "I expect Dolores and Joey to be very successful and surpass their wildest dreams. Joey wrote this past winter asking if I could recommend any current students to work on her Web design team. I was both flattered and excited that she was coming back to Pasadena City College in that capacity. Dolores has developed an impressive clientele by word of mouth and references, so she can continue to do Web design from her studio. I love both these women. I love all my students. They inspire me to do better! Failure is not in our vocabulary."

South Carolina ATE Program Builds Partnerships with Industry

Tori Parnell, Mac Huntley

Most of Tori Parnell's classmates at Lamar High School in South Carolina opted for traditional careers. Parnell, 19, a first-generation college student, dismissed those options. "I knew throughout high school that I didn't want to pursue a traditional career like most of my friends," she says. "In my senior year I decided on engineering graphics because I have always liked drawing, and I saw this as an opportunity to do what I liked." Parnell became the first woman to graduate from Florence-Darlington Technical College's Advanced Technological Education (ATE) program.

Mac Huntley, 19, another successful graduate of the program, found his niche in the electronics and instrumentation specialty. "Since the 10th grade, I have known that I wanted to work with electricity in some capacity," says Huntley. "The ATE program allowed me to get the hands-on experience that I wanted—right away."

"Across the nation, industries are scrambling for technicians, particularly in the electrical and mechanical specialties," observes plant manager D. Ray Mantle of South Carolina-based Nan Ya Plastics Corporation. "The ability to take a student and have a direct impact on what he or she is learning is invaluable. We don't have to go through the expense of retraining."

In selecting an intern for Nan Ya, Mantle looked to the NSF-funded ATE program at Florence-Darlington Technical College in South Carolina. The program's curriculum

Florence-Darlington student Mac Huntley sets up and tests a digital circuit.

Tori Parnell puts the final touches on a conveyor design project.

Students: Tori Parnell, Mac Huntley

Institution: Florence-Darlington Technical College
Florence, South Carolina

URL: www.flo.tec.sc.us/departments/technical_&_general/index.htm

Fields: Electronics and Instrumentation, Engineering Graphics

ATE Center: South Carolina Advanced Technological Education Center of Excellence

BEST COPY AVAILABLE

emphasizes team-oriented, problem-based learning while affording students the opportunity to work as paid interns gaining hands-on experience. Students are given real-world physics problems, and they use the resources of their entire team to engineer solutions.

Huntley, who was selected for the Nan Ya internship, explains, "Our group once worked together to solve the various physics problems associated with moving corn from the ground into a silo. It sounds simple, but given very basic guidelines, we were challenged to calculate gear ratios, consider the physical characteristics of the corn, and consider the economic impact, minimizing the cost."

The curriculum is designed to allow for maximum collaboration between ATE faculty in assigning projects. Says Parnell, "They frequently discuss ways to work together to give us the skills we need." Huntley adds, "A traditional program may teach students mathematics, English, physics, and economics, but the ATE program manages to integrate those classes. I find the instruction more practical. For example, in our English class, more emphasis is placed upon successful, industry-specific résumé writing. Traditional programs give students knowledge, but students in those programs don't always see how it all comes together."

"The program offers relevance," adds Doug Macdonald, ATE program director at Florence-Darlington. "We manage to get the students connected with industry. That aspect of the program is vitally important to their success." Students split their time between the classroom and their internship. Companies invest in the success of their interns by providing a full scholarship covering tuition, books, and expenses.

.A recurring theme among participants is the importance of the team-based learning approach. Huntley comments, "Teamwork reflects the way that things are actually done in industry." Macdonald adds, "Students in the program develop peer relationships such that when they perform poorly, they are as likely to get feedback from their peers as they are from their instructors and employers. This 'support group' is important."

Another important component of the college's ATE program is the synergy that is produced when students and educators collaborate with industry. Says Macdonald, "Interns are assigned mentors who receive and review the students' academic progress, keeping close tabs on their development. If the grades slip, a mentor is able to interact with the student in a way that perhaps no one else can." Huntley believes that this makes him a stronger student: "I think it makes me a lot more conscious of what I am doing and helps to motivate me."

"Across the nation, industries are scrambling for technicians, particularly in the electrical and mechanical specialties. The ability to take a student and have a direct impact on what he or she is learning is invaluable. We don't have to go through the expense of retraining."

—D. Ray Mantle, plant manager
Nan Ya Plastics Corporation, South Carolina

Motivation is what drove Tori Parnell and her classmates to petition the administration at Florence-Darlington to support a program enabling them to travel to sister colleges in Ontario, Canada, and Mainz, Germany, to gain a more global perspective. Students also had the opportunity to host their colleagues from Germany. "As a result of the program, Tori has developed very strong 'soft' skills and is now more prepared to communicate with people everywhere," says Macdonald.

After their first year of using the curriculum, educators and administrators at Florence-Darlington are optimistic. An astounding 100 percent of the program's participants have been offered full-tuition internships. Huntley praises

the program: "Now that I am working in industry, I am even more certain that electronics and instrumentation is what I want to do!"

One of the college's top priorities is attracting more female and minority students to the program. Parnell, who accepted an internship with SMI, a steel-framing company, has this advice for other female and minority students with an interest in technology: "Go for it! There are disproportionately few females and minorities in the engineering field, and there are employers out there just waiting for us. I would do it all over again!"

Students' Design Gets Two Icy Thumbs Up from Antarctic Researchers

Brian Case

Want to go on the ultimate cycling adventure? Try riding on the frozen tundra at the South Pole. Impossible, you say? Not anymore, thanks to the new Ice Prowler, the brainchild of advanced design students at the Art Institute of Pittsburgh (AIP) in collaboration with the University of Chicago and the Center for Astrophysical Research in Antarctica (CARA) funded by the National Science Foundation's Advanced Technological Education program. This specialty bicycle is intended to solve a problem that Antarctic researchers have long confronted—transportation at nearly 100 degrees below zero.

CARA is a consortium of universities that builds and operates telescopes in Antarctica. These telescopes are positioned in what is known as the Dark Sector, an isolated area selected to keep light pollution and electromagnetic radiation from disrupting experimentation. Researchers typically walk the path to the observatories many times a day. Riding the Ice Prowler makes the trek a bit more tolerable.

After recent communications with CARA, AIP industrial design instructor Bill Farrell learned that the Ice Prowler provided more than just a mode of transportation for researchers. "They want it to be more recreational," he says. "We didn't think anybody would ride it for fun!" Apparently there is a strong demand for a cycle with more extreme gearing.

The first Ice Prowler was fashioned from aluminum mountain bike frames donated by Hanebrink Bicycles of Big Bear Lake, California. All plastic parts were removed and refitted with metal replacements. Wide handlebars and golf cart tires, specially cut with snow-grinding tread, improve mobility on the icy terrain. Farrell says, "The bike may need a bit more bite when used off the beaten paths, so the tires are being fitted with wire chains." The standard seat used on the first prototype had a tendency to crack in extreme temperatures so student Nick Boor designed a special resilient wooden seat ergonomically designed

Brian Case (left) played an integral role in designing components for the first Ice Prowler at the Art Institute of Pittsburgh.

Students: Brian Case (also Nick Boor and Chris Cowan)

Institution: Art Institute of Pittsburgh Pittsburgh, Pennsylvania

URL: www.iceprowler.com

Field: Industrial Design

ATE Project: Exploring Antarctic Technology through Industrial Design, Engineering Mentorships, and Problem-Based Learning

BEST COPY AVAILABLE

Project director Randall Landsberg rides the Ice Prowler at the South Pole.

to prevent compression of the insulation, thereby keeping the riders from freezing their own "seats."

Brian Case, a student at AIP, played an integral role in designing components for the first Ice Prowler. "Brian has been a tremendous asset to our involvement with CARA. He is an exemplary student in both his drive and his dedication. Brian has been involved in the design of the bike from the beginning, and has seen it through a number of phases," says Steven Butler, director of the institute's School of Design.

"I came to the Art Institute after three years of attending an excellent architecture program at a four-year institution," says Case. "I had an opportunity to tour the institute and find out that there were lots of exciting projects going on in their basement. Students were given freedom to use their creative capacities on fascinating, though at that time unpublicized, projects. I decided to make a move, and I'm glad I did. Even at the best four-year institutions, it's easy to feel like another number. I found that at the Art Institute of Pittsburgh, I was much more than that; I was part of a team."

Case, who primarily focused on building the wheels and frames for the first Prowler, has broadened his scope for the most recent prototype. He is spearheading the effort to redesign the Ice Prowler to better serve the needs (and wants) of the polar researchers. "Brian has put in countless hours of research, design, and fabrication, both in the classroom and out. He has tested and retested his ideas and utilized feedback from many sources to the fullest. Brian is always finding ways to improve on his latest designs," says Butler.

For the newest model, students have made modifications aimed at maximizing the efficiency of the rider. "The goal was to get the most power from the rider with the least amount of respiratory effort," explains Butler. "Also, on the mobility issue there were some traction considerations that needed to be addressed once we tested the various surfaces that one encounters at the South Pole. We tested the prototypes in Pennsylvania over the winter, but the extreme conditions of the South Pole are unforeseeable until you actually experience them."

Case recalls that when Steve Butler called him on the telephone from the South Pole, he

"I had an opportunity to tour the institute and find out that there were lots of exciting projects going on in their basement. Students were given freedom to use their creative capacities on fascinating, though at that time unpublicized, projects. I decided to make a move, and I'm glad I did. Even at the best four-year institutions, it's easy to feel like another number. I found that at the Art Institute of Pittsburgh, I was much more than that; I was part of a team."

—Brian Case, student
Art Institute of Pittsburgh, Pennsylvania

was pulled out of class so that he could hear, directly from Antarctica, any problems that riders were having with the prototype. "That feedback was very valuable. We were able to communicate about what was breaking and where they were losing traction. This helped us to reassess our bike and go back to the drawing board."

The designs for Ice Prowler II look promising as do the careers of Brian and his fellow students. Graduates of the institute have had a history of success. Former student Chris Cowan developed special gloves for cold weather and a mask that warms inhaled air while venting moisture to eliminate fogging. The CARA team was so impressed that they flew him to Antarctica to test his designs. The institute reports that while Cowan's inventions are now in production, he is busy working in feature animation for Disney.

Fly Me to the Moon: Community College Student Assumes Key Role at NASA

Jeremy Scott

Jeremy Scott's job requires that he be "spaced out," yet it brings him back to earth every day. A Geographic Information Systems (GIS) analyst for NASA, Scott has parlayed a summer internship into a permanent position with the agency. In a field that is less than 10 years old, this Houston Community College (HCC) student is examining our planet in a way that will change how we all look at the world.

GIS uses data collected from sources including the Global Positioning System (GPS) to provide relevant spatial information. An illustration of the potential of GIS, according to project head Osborne Nye, is its use at Texas's King Ranch. "In the past, individuals rode on horseback, mile after mile, day after day, to examine the hundreds of thousands of fence posts on the property and determine which ones needed to be replaced," he explains. GPS systems similar to those in late-model automobiles permitted experts to map posts and collect data for each one. "GIS is a database management tool. We can enter the age of each post, whether it holds barbed wire and how many strands, and the composition material." Instead of cowboys riding the range for months on end, a team of analysts uses computer technology to determine the need for replacement. "We can search for all posts made of white pine and more than five years old," Nye says. "The GIS technology gives us a detailed map of those posts that meet our criteria. Then the crew can check only those determined to be in potential need of replacement."

Jeremy Scott joined NASA as a full-time GIS analyst following a successful internship there.

Student: Jeremy Scott

Institution: Houston Community College
Houston, Texas

URL: http://swc2.hccs.cc.tx.us

Field: Geographic Information Systems

ATE Project: GIS/GPS Laboratory Exercises Using Workplace Data Sets

Scott, originally an architecture major, has found himself in an unexpected position. "This has been a roller-coaster ride with lots of twists and turns," he laughs. "Initially, I never could have imagined all of the opportunities that GIS has given me." One of the first community college students at NASA, he helps to organize pictures from astronauts' missions into a framework that can be used to examine problems on earth. "We have images taken of Costa Rica from space," says Scott. The

BEST COPY AVAILABLE

pictures show the deforestation that has occurred in the area. Scott and other members of the team "view that photography and organize the data into information that can show affected areas, levels of deforestation, and comparison of the current problem with past records." GIS also allows them to weigh environmental factors such as land use, population, and water levels.

Until recently, such technology would have seemed unimaginable. "We're doing something completely different here," notes Nye. "We may walk into GIS as geologists or geographers or foresters, but we become totally immersed in a new way of thinking."

Attending a community college has been a new way of thinking for Scott, who entered higher education with a semester at a four-year university. Overwhelmed by the course load and unprepared for the demands of a larger institution, he dropped out and decided to "take a break from education." Working two jobs and "getting tired of the rat race," he decided that he "had to accomplish something to get a sense of completion." He decided to return to school at HCC and has been very pleased with that choice. "A community college helps you get your feet on the ground, then offers you just as much as you can handle. You are much more able to make your educational experience what you want it to be." He credits his success to Nye and HCC's GIS program, for which GIS/GPS laboratory exercises using workplace data sets were produced with funding from NSF's ATE program. "I learned to speak the language at HCC. From a technical aspect, a traditional classroom could never have prepared me with the opportunities that I would need to hone my skills for this position," he says.

NASA's understanding of the HCC program made Scott the perfect candidate for the job, says Cindy Evans, project manager for his team. "We [NASA] had input into the curriculum there, so we knew the strong core that he had. He clearly had some real-world experience to offer—he's very together and very knowledgeable." She would encourage other students to consider the GIS arena. "This can be done on a community college level, so that someone who can't afford four years or someone who wants to continue working while they're pursuing an education can achieve a very employable level of proficiency in only two years."

"A community college helps you get your feet on the ground, then offers you just as much as you can handle. You are much more able to make your educational experience what you want it to be."

—Jeremy Scott, student
Houston Community College, Texas

This fall, Scott will graduate from HCC and transfer to one of only four or five universities in Texas that offer GIS instruction. Evans sees great things in the future for a young man Nye describes as "incredibly talented and an extremely nice person underneath it all." "We feel very lucky to have Jeremy," says Evans. "He could walk out the door right now and get any number of positions. The rapid growth of GIS on all levels means that he is very, very well positioned." Nye agrees. "Everything is open to him, absolutely everything."

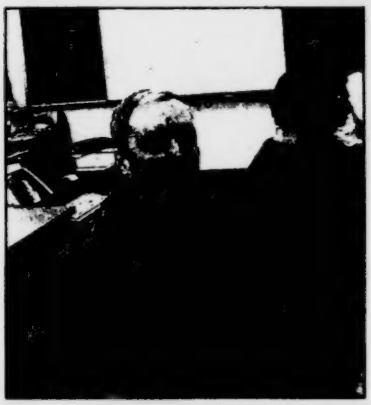
BEST COPY AVAILABLE

Retired Firefighter Trades Bunker Gear for Multimedia Career

Wade Atwood

"What do we need with an overpriced typewriter?" That's how retired firefighter Wade Atwood responded to his family's request for a new computer. That was several years ago and Atwood, 49, has never regretted the day he "caved in" to their requests. "When my wife and daughter were gone, I'd play with the computer. I decided that I might as well take a little class to help me use the thing. I went to Essex Community College and took a course called Intro to Computers. Then, realizing that it wasn't so difficult, I decided to take a Windows class. The paint program was really fun for me. So, I asked my instructor to recommend a class in a graphics specialty. She directed me to a certificate program in multimedia technology. I thought to myself, 'You can do this!' Now I am pursuing double certificates in multimedia and Internet technology," Atwood says proudly.

"Enrolling at Essex Community College was the best thing that could ever have happened to me," Atwood says. As a 20-year veteran of the Baltimore City Fire Department, he suffered a fall in 1989 that left him disabled and severely depressed. "I sat around feeling sorry for myself," he explains. Describing the events that led to his disability, Atwood recalls, "We had a fire on the second floor of a building. While taking a line up the ladder, I slipped and hit my head. The air pack was jammed into my spine. After a short stint on light duty, my condition forced me to resign."



Wade Atwood works to complete his Multimedia Technology Certificate at Essex Community College.

Student: Wade Atwood

Institution: Essex Community College
Essex, Maryland

URL: www.ccbc.cc.md.us/campuses/essex/academics/career/cert/e_immt.htm

Field: Multimedia and Internet Technology

ATE Project: Internet and Multimedia Technology: Curriculum, Faculty, and Workforce Development

Through his education at Essex Community College, Atwood feels that he has been given a new lease on life. The college's certificate and degree programs in Internet and multimedia technology, developed with funding from the NSF's Advanced Technological Education program, involve businesses as partners and provide internships and cooperative education experiences for students. Atwood

BEST COPY AVAILABLE

has recently begun an internship with the Historical Electronics Museum in Linthicum, Maryland, near Baltimore. According to museum director Kate Marks, Atwood's role is to create an interactive informational program using touch screens. With this technology, visitors will only have to touch menus on a screen to learn all about radar—how it works, when it was first used, and other historical facts. "I am really impressed with Wade's work. He has done a phenomenal job creating the program," Marks says. Atwood is excited about this opportunity to have his name on a meaningful project. He hopes to parlay his education and internship experience into a career developing Web pages and conducting multimedia presentations for corporate clients.

Soon after completing his first semester, Atwood became an active participant in campus activities. "I joined Phi Theta Kappa [the International Honor Society]. While in the organization, I have been able to participate in many fellowship activities and contribute to service-oriented projects such as the annual toy drive and the America Reads program, where I read books to children."

"Enrolling at Essex Community College was the best thing that could ever have happened to me."

—Wade Atwood, student
Essex Community College, Maryland

According to multimedia instructor Kathleen Harmeyer, Atwood has added something special to the dynamics of the class. "As a non-traditional student, Wade brought with him a great deal of zeal. He has enthusiasm for his work that you don't always see in traditional students. On top of that, he's a very creative person," she says.

Regarding his decision to enroll at the community college, Atwood comments, "I was scared to death! But there was no reason not to go for it. I decided that I had my whole life ahead of me. I would definitely encourage anyone who is in a similar situation to go to his or her community college and find a field that sparks an interest." After tasting success, Atwood plans to continue his education at Essex Community College to earn his associate degree.

Wade Atwood stands proudly in front of "Engine 44" at the Baltimore City Fire Department.

What Atwood will remember most about his community college experience is how proud his family was when he enrolled for his first class. He recalls, "They would say, 'My dad's going to college! My husband is going to college!' When my wife found out that I was going to pursue a degree, she was extremely proud. That made me feel so good!"

Beyond Her Wildest Dreams: Unique Program Leads Young Scholar to Africa

Denise Brijbasi

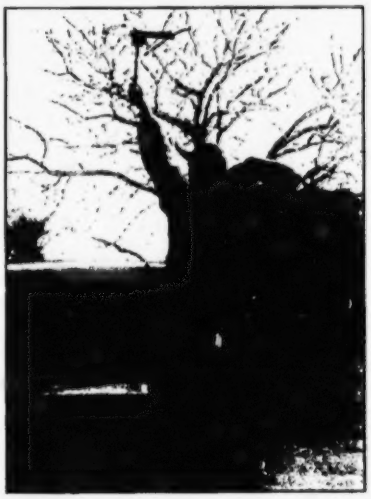
"No sudden movements! Shhh...don't raise your voice. You have to be very still," whispers Denise Brijbasi. It's 5:00 A.M. and Brijbasi and her fellow researchers are on the prowl looking for lions—in the wilds of Africa. Brijbasi, a senior at the University of Delaware, so enjoyed her experience as a participant in Prince George's Community College's Young Scholars Program that she decided to make working with wildlife a lifelong adventure.

Her most recent adventure, a summer internship with the LiGwalaGwala Lion Project, took her to South Africa to study animal behavior. Brijbasi credits the Young Scholars Program with developing her interest in wildlife: "Before I enrolled in the program, I didn't really know a lot about wildlife. On television, you see filmmakers going out into the wild. But behind every filmmaker, there is a researcher. My experience with the Young Scholars Program opened my eyes to a whole new field."

Brijbasi continues, "The Young Scholars Program both inspired and prepared me in many ways. Working with the lions, we're often out at five o'clock in the morning. Lions are nocturnal animals, and you have to work according to their schedules. I think working in a similar situation with ospreys and whooping cranes, through Prince George's, prepared me for the rigorous schedule."

Funded by the National Science Foundation, the Young Scholars Program at Prince George's is a summer program in field biology, which combines classroom curriculum with hands-on field experience. Students from area high schools are eligible to enroll in the intensive summer course, which can be applied toward college credit at Prince George's Community College.

Each summer, the young scholars travel to osprey nesting sites along the Patuxent River.



Denise Brijbasi studies animal behavior through the LiGwalaGwala Lion Project in South Africa.

Student: Denise Brijbasi

Institution: Prince George's Community College
Largo, Maryland

URL: http://academic.pg.cc.md.us/science

Field: Eco-technology

ATE Project: The Young Scholars Field Research Institute

BEST COPY AVAILABLE

Their mission: banding young ospreys before their first migration to South America. Ospreys have become rare as a nesting bird along the eastern seaboard. Researchers attribute this to a number of factors, including water pollution caused by DDT and acid rain, illegal hunting, and nest-robbing predators. In an effort to increase the diminishing osprey population, naturalists have built nesting platforms in the water, making the nests inaccessible to most predators. As a result, the eastern seaboard has seen a slow but steady rise in the osprey population.

Students from Prince George's program have played a role in that research by using the Global Positioning System (GPS) to carefully map the coordinates of each nest. The data are then entered into a central database at the Wildlife Research Center, where information is compiled from sources all over the world. As a result, scientists are able to study such areas as migration patterns, population changes, and leading causes of death, which allows them to take a proactive approach by identifying potential problems more quickly.

Denise Brijbasi enrolled in the Young Scholars Program during the summer following her freshman year of high school. She and her classmates were the first group of students to complete the program in 1994, its first year. The original Young Scholars project, a three-year endeavor, ended in 1997.

Given the program's tremendous popularity with students, Janet McMillen and Andrew Ross, science professors at Prince George's Community College, created a "new and improved version." Ross explains, "Scholars 2000 is a new program that we just began this year, in response to what Dr. McMillen and I perceived to be a need for summer field experiences for high school students. We've also brought in teacher partners from Prince George's County and have shifted our selection process to allow students who might not otherwise pursue a science experience to spend a few weeks conducting real research and analysis."

The summer program draws a number of disciplines together, according to Prince George's dean of science, mathematics, and health technology, Patricia Cunniff. "I believe that the program provides students with a unique opportunity for field experiences that permit them to integrate biology, mathematics, and computer technologies, and to add to our ongoing knowledge of wildlife behavior through banding and data acquisition. The experiences are truly unique and will be memorable to students throughout their lives."

The subject of Denise Brijbasi's research in his natural habitat.

"I believe that the program provides students with a unique opportunity for field experiences that permit them to integrate biology, mathematics, and computer technologies, and to add to our ongoing knowledge of wildlife behavior through banding and data acquisition. The experiences are truly unique and will be memorable to students throughout their lives."

—Patricia Cunniff, dean of science, mathematics, and health technology
Prince George's Community College, Maryland

Not every student will go on to research lions in the wilds of Africa, but Brijbasi thinks that the program helps students decide if the field is right for them. "It takes a special kind of person to work with wildlife. You really have to know yourself. It requires a great deal of patience. For example, you may go out at five in the morning and not find a single lion for five hours," says Brijbasi. "That can be very frustrating if you're not absolutely committed to what you are doing."

Clearly, Denise Brijbasi is committed to what she is doing. She is continuing her education at the University of Delaware. Though she's not certain where her wildlife adventures will take her next, she is sure of one thing: "I learned a lot about myself in South Africa. I've experienced life beyond my wildest dreams—a life I may never have known without the Young Scholars Program at Prince George's Community College."

Information Technology Student Lives Her Dream: Escaping the Shadow of War

Jessica To

Sitting in her Bellevue, Washington, office, software developer Jessica To, 24, a recent graduate of Bellevue Community College's Information Technology Program, reflects on her struggles as a young girl growing up in war-torn Vietnam. "Growing up in a Vietnamese middle school, we were forbidden to mention anything pertaining to Western culture—'the great evil.' I looked forward to having the freedom to say or do whatever I wanted without fear."

The road to Thailand via the Cambodian jungle was an arduous one, but Anh Ngoc and Pang Van To knew that leaving Ho Chi Minh City was the only way to secure a life of freedom for their children. They left Jessica, her brother, and her sister in the care of their grandparents. After walking for hours into the night, they knew that it would be three months before they reached Thailand. But if their children could enjoy the freedom and opportunities they never had, it would be worthwhile. Walking through Cambodia, hours turned into days and days into months.

For 10 years, Jessica, her siblings, and her grandparents endured the hardships of being Chinese citizens in a land filled with people that despised them. Only after these 10 years would Anh and Pang manage to scrape together enough money to bring Jessica, then 13, and her siblings to America.

Though her story is moving, To is quick to point out that adversity actually contributed to her personal success. "I think that my experiences give me a deeper appreciation for what I have now. It makes me work that much harder."

Jessica To works as a software developer for Corbis.com.

Student: Jessica To

Institution: Bellevue Community College
Bellevue, Washington

URL: http://high-tech.bcc.ctc.edu

Field: Information Technology

ATE Center: NorthWest Center for Emerging Technologies: New Designs for Advanced Information Technology Education

She also credits Bellevue Community College's Information Technology Program with giving her the tools necessary to excel as a software developer.

To's uncle, who had come to Seattle several years earlier, found his niche in computer programming. To enjoyed the time she spent with her uncle, and it was not long before she too developed a keen interest in programming. "When I was about 15, I knew that I wanted to work in the computer industry," recalls To.

BEST COPY AVAILABLE

"I remember being fascinated when my uncle created a graphical calculator program from scratch. It fed my desire to learn."

After graduating from high school, To enrolled in Bellevue Community College's Information Technology Program—a program made possible through a grant from the National Science Foundation's Advanced Technological Education program. "They taught me everything I needed to know to find employment in the computer industry," To recalls. "I was then able to land a position at Microsoft."

"The education I received while at Bellevue Community College gave me a great foundation. I'm now able to develop programs that meet the changing needs of businesses, which is exactly what I want to be doing."

—Jessica To, software developer
Corbis.com, Washington

After gaining experience at Microsoft, To continued climbing, securing a position with Corbis.com, a company that specializes in selling high-quality images to such clients as advertisers and magazine publishers. As a software developer for Corbis.com, To creates and maintains highly interactive Web sites for commercial clients. "The work I do is fun and challenging; it requires a lot of creative thinking," says To.

To attributes her success to a solid education. She was also motivated by a strong yearning to "right the wrongs" that her parents faced. "I was so angry that my parents never had the educational opportunities that all human beings deserve. I used that anger to capitalize on my opportunities, as much for them as for myself. The education I received while at Bellevue gave me a great foundation. I'm now able to develop programs that meet the changing needs of businesses, which is exactly what I want to be doing."

"The position Jessica accepted at Corbis.com is a real plum," says Jack Perry, instructor at the college. "She is, and continues to be, a top student. Jessica has come back to Bellevue to take additional courses to remain current in the rapidly changing field. I foresee a great future for her."

To say that it was difficult for a young girl to grow up without her parents as a Chinese citizen in postwar Vietnam is a considerable understatement. But To believes that everything she has been through makes her more appreciative of the opportunities that have recently been afforded her. To, who came to Bellevue Community College to obtain the education her parents were denied, now has her sights set on becoming a senior software developer.

Surfing Star Rides the Distance Education Wave from Prison

Charlie Quesnel

A huge northwest swell converged upon Oahu's Waimea Bay. With waves topping 18 feet thrashing inland, 16-year-old Charlie Quesnel stood in awe, watching his idols conquer the surf. "I stood on the beach, thinking for the first time that I might be able to handle that stuff," Quesnel remembers. Little did he know that what happened next would be a metaphor for what his life would become. "I was held at the top of the lip of this monstrous wave, and then over I went!" he says. "All I wanted to do was save my life!"

As a young man, Quesnel had a promising future. At 13, he was featured regularly in Bing Surfboards ads. By 16, he had established himself as a competitor in the U.S. Surfing Association. He secured sponsorships from Dive 'n Surf Wetsuits and Laguna Swimwear, among others. However, like his experience on the waves of Waimea Bay, Quesnel's life took a turn for the worse—and over he went.

This time, however, "going over the wall" meant a 45-year prison sentence. A drug addiction brought him crashing down. "By 1973, I began to have regular run-ins with law enforcement," Quesnel says. "Ultimately, my addiction removed me from my love of surfing."

Forty-five years must have seemed like a death sentence to Quesnel. However, he never gave up hope. "In January of 1993, I had a simple but enlightening spiritual experience that turned my life around—the strongest desire not to use [drugs] anymore. If I ever wanted to see the light of day again, I had to change something: everything. The irony of my situation was that being locked up could actually have a great benefit—finding freedom from my self-made prison, a new way of life! For the next couple of years, I became immersed in a 12-step program."

Charlie Quesnel and his wife of four years, Sharon.

Student: Charlie Quesnel

Institution: Maui Community College
Maui, Hawaii

URL: www.ecet.mauicc.hawaii.edu/ecet

Field: Electronics Engineering

ATE Project: Transporting Science, Computer, and Engineering Curricula to Rural Minority Students through Telecourses and Internet

It was during this time of introspection that Quesnel found Maui Community College's distance learning project, funded by the National Science Foundation's Advanced Technological Education program. Quesnel

BEST COPY AVAILABLE

began a program of study in computer electronics. Community colleges like Maui offer a unique opportunity for inmates to learn skills that will help them make a successful transition into the community.

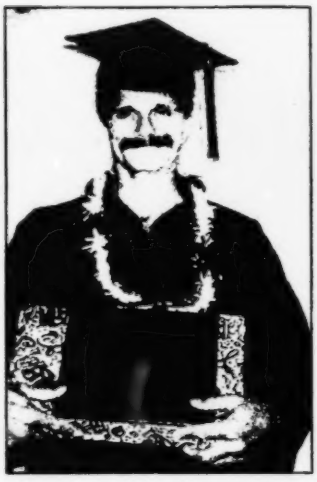
Quesnel, who experienced his share of exhilarating moments riding the waves, would once again feel the sensation of freedom. "On July 26, 1995, when I least expected it, a newscaster here in Hawaii announced that one of my cases had been overturned by the State Supreme Court," he recalls. "Within six months, I walked from the gates. I'd been doing the right things for my well-being and peace of mind, participating in my own recovery process. My 'higher power' showed me that it was time to move on with my life. In December 1997, I was discharged from my parole and the 45-year sentence was gone—incredible freedom, as I had been on parole or probation since I was 18."

"Today, having been drug free (as well as tobacco free) for over seven years, and having found a loving, caring, and beautiful wife of four years and a great job, life is good!" Quesnel says contentedly. "I am employed at Maui Electric Company as a solar and lighting inspector, working with a fantastic, supportive, and energetic group of people. On May 16, 1999, I graduated from Maui Community College with an associate of science degree in computer electronics."

"A good education is a key that opens countless doors in our lives."

—Charlie Quesnel, solar and lighting inspector Maui Electric Company, Hawaii

Looking back on life, Charlie Quesnel knows that he is fortunate. First, for having the opportunity to learn that freedom is intrinsically tied to a reverence for individual responsibility. Second, for having the gift of



Charlie Quesnel at Maui Community College, eager for a fresh start.

articulateness, enabling him to share with young people across the nation his "been there, done that" wisdom. He advises:

"Follow your heart wherever possible. We are all born with this innate ability to do the right thing, to know right from wrong...This interdependence, though, tends to get in the way of our lives as we get older; the peer pressure is too great. Be responsible and accountable for your actions. A good education is a key that opens countless doors in our lives. Find a healthy passion in life, whether it be in sport or in art, and seek to be your best at it! Always try to find some humor in the face of rough times."

Student's Efforts Make Virtual Classroom a Reality

Randy Eder

What do a businessman, a single mother of three, a disabled veteran, and a midnight-shift worker have in common? If you guessed that these students can take Daytona Beach Community College (DBCC) classes leading to technology careers without ever leaving their homes, you guessed correctly! Actually, students from all over the world now have access to DBCC, thanks in part to the determination of electronics/electrical engineering student Randy Eder and the National Science Foundation's Advanced Technological Education program.

When Daytona Beach Community College first launched its Virtual Classroom Project, they enlisted Eder to serve as the lead lab technician. "I recruited Randy based upon his excellent reputation with the electronics faculty," says Bob Williams, chair of the computer and engineering technology department. "For the endeavor to be successful, several things had to come together—tools had to be selected and acquired, a lab built, infrastructure put in place, and faculty training and support had to be provided."

"The objective of the project is to attract more students into technology programs by increasing the availability of introductory courses [delivered by distance learning]," Williams explains. By using distance learning techniques, students are able to access learning tools and class materials anywhere, anytime. Working with lab manager Sakine Henderson, Eder immediately went to work. "Randy has a unique set of talents working with both computer hardware and software. We were able to incorporate many of the latest technological developments into the project, thanks to Randy's willingness to research and experiment with new alternatives," says Williams.

Randy Eder was instrumental in the success of the Virtual Classroom Project.

Student: Randy Eder

Institution: Daytona Beach Community College
Daytona Beach, Florida

URL: www.dbcc.cc.fl.us

Field: Electronics/Computer Networking

Project Title: Virtual Classroom Environment

"When I first started on the project, I wasn't exactly a networking expert," recalls Eder. "Together, Sakine and I learned more about networking and Windows NT, and we built the classroom lab and network infrastructure. We spent many late nights at the college

BEST COPY AVAILABLE

working out the bugs and getting everything up and running." Another team member was assigned to complete the Web design for the project, but when other commitments prevailed, it was Eder and Henderson who made a quick study of Web design. Within three weeks, they got the job done.

The Virtual Classroom is now a reality for DBCC. Looking back, Randy Eder remembers getting more than just a technical education from the project: "Working on the project really changed me. I learned how to work professionally. I learned what it means to have responsibilities. I learned how to work within a team environment. Most of all, I learned what it means to be truly devoted to something. It doesn't matter what time it is or if it's a holiday, we do what it takes to make the project a success."

For many DBCC students, the Virtual Classroom is more than just a project. Many people want to take advantage of the community college experience but encounter obstacles such as disabilities or time constraints. Now they can log on to the Virtual Classroom; suddenly they have opportunity at their fingertips. Says Williams, "One student signed up for an AutoCAD class, but was involved in a serious automobile accident leaving him hospitalized. Instead of withdrawing, the instructor gave him prototypes. He was able to log on and take the classes through the Virtual Classroom. When the student rejoined the class mid-semester, he hadn't missed a beat. In fact, he was a star student."

Eder is proud of his accomplishments and the obstacles he overcame while playing a vital role in DBCC's successful venture, but he has no time to reflect on them. "Sakine and I are working on creating an academic Web site for DBCC," says Eder. "We've set up a Web server and have provided space for the departments and instructors. Now we are working with the faculty to show them how to use the software to access the server and design their own pages." The project promises to be a huge success, but with Randy Eder involved, that's a given.

"I would venture to say that this NSF/ATE project made a big difference in Randy's life and future, while allowing him to make a big contribution to the future of the college."

—Bob Williams, computer and engineering technology department
Daytona Beach Community College, Florida

"Randy exemplifies the ideal student assistant for this type of ATE project," says Williams. "He has an aptitude for technology, a willingness to work hard and with integrity, and a passion for excellence. Not only did he contribute greatly to the achievement of the goals of the project, but also the knowledge and experience he gained on the job furthered the college's goals to provide students excellent opportunities in teaching and learning. I would venture to say that this NSF/ATE project made a big difference in Randy's life and future, while allowing him to make a big contribution to the future of the college."

Eder, who plans to continue his education at the University of Central Florida and major in engineering, has this advice for students who decide to tackle a similar project: "Don't allow yourself to get overwhelmed when you realize how much work will be required to meet your goals. You will face many problems, and you can't be afraid to try new things. Sakine always told me, 'If it's written in a book, then it means someone else already did it and we can too!'"

Five-Week-Old Learns Valuable Lessons about Life

Kelly and Malik Peoples

At five weeks old, Malik Peoples did something many people never do in their lifetime—he went to college. Paradise Valley Community College freshman Kelly Peoples was six months pregnant with Malik when her boyfriend abandoned her. Kelly had some difficult choices to make. "I was going to keep my baby—no matter what happened," she explains. "Suddenly, I was bombarded with all of these statistics that would have you believe that my baby would live a destitute life and wind up in prison because he had a single mom." To complicate matters, Peoples was diagnosed with toxemia, requiring her to be hospitalized on 10 separate occasions. She would not be deterred, however, and resolved each time to return to classes. "It became my mission for Malik to know that I didn't let anything stand in the way of getting an education. Maybe this is a lesson that he can draw from later in life; he'll know that Mom didn't quit and he shouldn't either.

While in high school, Kelly had planned a career in business. "My teacher recommended me for an internship in the environmental department of a casting plant," she says. "The position required me to fill in for the company's regular employees during extended absences such as for maternity leaves. I was a little unsure—my concept of environmental science was limited; I thought they wanted me to hug a tree. But I quickly learned that there is so much diversity within environmental science, and I became genuinely interested." Her performance landed her a permanent job with the company. "After graduation, I was literally thrown into the position of environmental coordinator," she says. "I needed more education, and I needed it quickly!" Peoples found Bob Treloar at Paradise Valley Community College, and enrolled in the Safety, Health, and Environmental Sciences (SHES) program.

Malik Peoples attended classes with his mother at Paradise Valley Community College.

Student: Kelly Peoples

Institution: Paradise Valley Community College
Phoenix, Arizona

URL: www2.pvc.maricopa.edu/hazmat/certprog.html

Field: Industrial Safety

ATE Center: Advanced Technology Environmental Education Center (ATEEC)

BEST COPY AVAILABLE

After Malik was born, Peoples faced another challenge. She had no one to care for her newborn son, but she was intent on completing her education. Her only option was to bring young Malik along. "I don't think it was really within the school's guidelines, but my professors let me bring Malik to class. We used to joke that his first word was going to be HAZMAT [the abbreviation for hazardous material, a recurring topic of discussion]."

Upon successful completion of the program, Peoples landed a job with a sheet-metal company, doubling her salary. "Bob always seeks out job opportunities for his students. One day in class he told us about this opening for a manufacturing safety director. He pulled me aside and said, 'Kelly, I think you should go for it.' I went for it, and I got the job."

"I went to Paradise Valley because I didn't feel that I could get a better education anywhere for what I wanted to do."

—Kelly Peoples, former student
Paradise Valley Community College, Arizona

Peoples is now more confident than ever that the decisions she made were the right ones. "I went to Paradise Valley because I didn't feel that I could get a better education anywhere for what I wanted to do," she says. Paradise Valley is one of five community colleges with an environmental technology program sponsored by the Advanced Technology Environmental Education Center, a national Center of Excellence funded by NSF's Advanced Technological Education program. While most students finished the SHES program in two years, Kelly (and Malik) doubled up on classes, completing the program in only one year.

Her new job helped her keep Malik "in school"—she enrolled him in a Montessori program. "I'm serious about his education," says Peoples. "The $700 a month nearly breaks me, but in the end it's worth it. Malik has already learned a few valuable lessons in life. He is truly fortunate. Though Malik is too young to realize it now, one day he will likely come to appreciate the priceless values that his mother instilled in him about never giving up, having a vision for the future, and putting family first."

Peoples has her own vision for the future—she'd like to get married and continue climbing the corporate ladder. But above all, she values the life she shares with Malik. "I love my son and, for the first time in my life, I love my job! No matter what else happens in life or in my career, Malik comes first," she says. "I think as a single mother, you just have to decide that it's just going to be the two of you, and you have to make a pass and go for it." Incidentally, Peoples says that thankfully Malik's first word wasn't "HAZMAT"—appropriately, it was "Mom!"

58-Year-Old Leaves Successful Banking Career to Make a Difference

Carl Goin

It's never too late to follow your passion. Just ask Carl Goin. He will never regret the day he traded a prominent career in the banking industry to pursue a degree in environmental science. For Goin, this was more than an end to a 28-year career; it was an opportunity to follow his desire to make a difference.

In the early 1980s, Goin held impressive posts in the savings and loan industry—first managing officer of a multibillion-dollar portfolio, then chief mortgage officer, and finally executive vice president. When the industry came crashing down, the Resolution Trust Corporation (RTC) stepped in to take over and disperse the assets of member banks. "It was a rough time for everyone," Goin remembers. "Many people lost their jobs. Federal regulators needed to assign people with experience to complete the resolution."

Because of his extensive experience, Goin was hired as a vice president of asset recovery with the RTC. Later, he became a managing agent for an $8 billion, 62-branch operation with more than 2,000 employees. After successfully completing his role with the RTC, Goin was recruited to advise the State Savings Bank of Sofia, Bulgaria, in portfolio management, specifically on underwriting procedures for construction loans.

During his career in the savings and loan industry, Goin worked extensively with environmental problems. In one particular case, about $400 million of the $1.5 billion portfolio he managed was affected by environmental contamination problems. "The problems in that portfolio directly affected 12 states," Goin recalls. "Seeing firsthand the extent of the problems, I was determined to make a difference."

That desire to make a difference led him to leave the banking industry and enroll as a 58-year-old freshman in the environmental sciences program at Paradise Valley Community College (PVCC) in Phoenix, Arizona. PVCC is one of five community colleges with an environmental technology program sponsored by

Carl Goin's biggest fan, his wife Sylvia, supported his decision to launch a new career.

Student: Carl Goin

Institution: Paradise Valley Community College
Phoenix, Arizona

URL: www2.pvc.maricopa.edu/hazmat/certprog.html

Field: Environmental Health and Safety

ATE Center: Advanced Technology Environmental Education Center (ATEEC)

BEST COPY AVAILABLE

the Advanced Technology Environmental Education Center, a national Center of Excellence funded by the National Science Foundation's Advanced Technological Education program. "I hit college head-on," Goin says. "I already had my B.A. in finance and a great deal of experience. What I needed was to be better educated about the health aspect of environmental contamination. I think that the Maricopa Community College system, which is one of the best in the country, offers an excellent curriculum with highly qualified instructors, so the choice was an easy one."

Opting to leave an established and financially lucrative career to follow one's passions is never painless. But for Goin, the choice was made easier by the tremendous support of his wife, Sylvia. "Carl's studies in environmental issues are very important to me," she says. "I realize that the United States has many serious health issues. I am very proud of him and what he desires to accomplish and will support him in any way possible."

"We assigned Carl to work with a project looking into pollution problems along the Colorado River, which is a major water source for the western United States. He showed initiative and maturity that you don't get out of many students who have less 'life experience.'"

—Bill Quinn, prevention unit Department of Environmental Quality, Arizona

Following his stellar performance as a student at Paradise Valley, Goin secured an internship at the Arizona Department of Environmental Quality (ADEQ). "I completed fascinating research on the contamination of the Colorado River while working on a pollution prevention project," he says. "We assigned Carl to work with a project looking into pollution problems along the Colorado River, which is a major water source for the western United States," says Bill Quinn of ADEQ's Prevention Unit. "He showed initiative and maturity that you don't get out of many students who have less 'life experience.'"

Carl Goin (far right) meets with managers of the State Savings Bank in the Rodope Mountain Region of Bulgaria.

"Soon after, I was hired full-time by the department as a Superfund site investigator," Goin says. Continuing his climb up the ladder at the Arizona Department of Environmental Quality, Goin was recently promoted within the Arizona state government system to his current post auditing contractors for the Arizona Department of Transportation.

Carl Goin has left his mark in Arizona. He is a valiant example for anyone who believes that time has passed them by. Having achieved his goal of making a difference, is this 63-year-old grandfather making plans for retirement? "No, I'm making plans to complete my master's degree which I will continue pursuing at the University of Arizona," Goin says. "My mother is still going strong, and she's 100 years old."

Stepping into the Computer Lab Means Stepping into the Future—and a New Career

Cheyanne Lewis

As you enter the lobby of Central Valley Graphics, Forbes, a computer-generated receptionist, greets you. She gives you a tour of the firm's layout, then guides you to the boardroom where digital co-workers are waiting for you. Your assignment? To interview those co-workers and form a problem-solving team. At your fingertips are videos, company protocol manuals, and a computer link to Central's CEO. Is this the workplace of the next century? It may be, but it is the learning environment right now for students at Hagerstown Community College (HCC) and four other two-year colleges across the United States that are participating in the SCANS 2000 Project, which is funded by the National Science Foundation's Advanced Technological Education program.

Elizabeth Mathias, project co-leader, explains the foundation for the CD-ROM-based program. "The Department of Labor formed a committee to examine the skills, or competencies, that are necessary for workers to succeed in the business world. The Secretary's Commission on Achieving Necessary Skills (SCANS), launched in 1990, identified five essential competencies: resources, information, interpersonal skills, systems, and technology. Individuals who plan to compete in the workplace will have to master the many facets contained within these broad-based competencies in order to be both a good employee and a good citizen. The CDs are the result of asking, 'What if students are able to experience the workplace without ever leaving the classroom?'"

Cheyanne Lewis tests a module while her professors Robert (Bob) Carson and Mike Harsh look on.

Student: Cheyanne Lewis

Institution: Hagerstown Community College
Hagerstown, Maryland

URL: www.hcc.cc.md.us

Field: Manufacturing Technology

ATE Project: Associate Degree for Manufacturing Technicians: Institutionalizing Change in Technical Education by Expanding a "Work in Progress"

The program consists of five CD-ROMs, each designed by one of the schools in the partnership. "It's a '5 by 5' approach," says Bob Carson, a mathematics professor at the college and developer of the math CD.

BEST COPY AVAILABLE

"We have five colleges, each with a multidisciplinary team of five faculty members." The five disciplines addressed by the program are mathematics, science, technology, communications, and engineering. Mike Parsons, dean of instruction, has seen the difference of this unique training program. "For making the transition from didactic to simulative, collaborative learning, these CDs are nearly perfect," he says. "When our students come out of this program and go into the workplace, they immediately emerge as leaders."

"I have now decided that I want to teach at the community college. I want to have the opportunity to use [the SCANS 2000] project and give to others what it has given me."

—Cheyanne Lewis, student
Shepard College, West Virginia

One leader who has emerged from the program is Cheyanne Lewis, whose interest in the SCANS 2000 Project began even before the CDs were ready for use. After seeing a short demonstration of the pending project in professor Mike Harsh's communications class, "I could not believe the dedication and commitment of the involved professors to try something new," she remembers. "These people had realized that education wasn't just about memorization, books, and lectures—truly I had stumbled onto education reform."

Originally a human services major, Lewis became so involved in the SCANS program that she pursued a general studies degree instead. She started as a student aide for the project, but has played an important role since graduating from HCC, supporting the faculty members involved and even helping Professor Harsh to teach the teamwork-building module. "I have now decided that I want to teach at the community college. I want to have the opportunity to use this project and give to others what it has given me," she says.

The project has had surprising benefits for other students as well. "We are teaching more than basic competencies," explains Harsh. "We are actually seeing a greater appreciation of diversity as students deal with people in the programs who look vastly different from their classmates." Computer-generated characters within the teamwork module, for example, include individuals of all colors, ages, and ethnic groups. "Our students can see that there's a world beyond South Mountain."

Lewis credits her involvement in the project with helping her to rediscover the joy of learning. "I never made good grades in K-12 and I don't recall having much fun," she mentions. "I have found passion, direction, and focus that I would not have had were it not for this project." To get to this point, Lewis has faced challenges that would have deterred others. Married at 15 and a mother by 16, she left school after the 11th grade. She later finished a GED, but her marriage ended and she took a variety of low-paying jobs to support her daughters. In 1997, she remarried and shared her secret goal with her new husband: "I confided in him that my ultimate dream was to go to college."

Now a student at Shepherd College in West Virginia, Lewis will receive her bachelor's degree in general studies in May 2001. There to celebrate her accomplishments will certainly be her three "biggest fans"—her husband and daughters, now 10 and 14. They are, she says, "extremely proud." They are also watching her example closely. "My 14-year-old comes over to the college and spends time working with some of the professors in the program. She plans to come [to Hagerstown] for college and I could not be happier."

The SCANS 2000 Project is now moving into a new phase as "three CD-ROMs are being developed for use at the high school level," according to Harsh. This group of visionary faculty and Cheyanne Lewis are ensuring that high school and community college students will be better prepared than ever to one day enter the technology-driven workplace of the future.

Former Football Star Becomes Technology Pro

Dustin Gorman

Not too long ago, Dustin Gorman was too busy passing a football to pass his classes at a state university. "I went to [college] to play football," he recalls. A self-described "hotshot" who became a starter for the team in only his freshman year, Gorman found his schedule overwhelming and set priorities he came to regret. "I went to classes all day, then practiced till dark, then ate dinner, then watched game films," he says. "I was exhausted and the last thing I wanted to do was schoolwork." He quit school. Gorman has since come from behind, however, to attain a 3.79 GPA at Bristol Community College (BCC). He has also scored extra points with a prestigious internship at Verizon (formerly Bell Atlantic), thanks to training that he received in a telecommunications program developed by the Northeast Center for Telecommunications Technology with funding from the National Science Foundation's Advanced Technological Education program.

Dustin Gorman prepares fiber optic cable for a connector.

Student: Dustin Gorman

Institution: Bristol Community College
Fall River, Massachusetts

URL: www.bristol.mass.edu

Field: Telecommunications

ATE Center: Northeast Center for Telecommunications Technology

One of more than 3,000 technicians employed by Verizon, Gorman participates in a unique program that allows him to get his education and work in his chosen field at the same time. "I go to school one day a week all day, then the rest of the week I work normal hours," he explains. His schedule as a community college student is no less hectic than in his gridiron days. "I work 40 hours a week. Last spring, I took 16 hours, then I've got two courses this summer." The difference for Gorman this time, however, is his passion for his chosen field. "Maybe I'm a geek, but I really, really love what I'm doing!" he says. As a construction service splice technician, his work affects the nation's largest communications infrastructure. "Without us, data would not get through at all—it would be lost," notes Gorman, who takes this responsibility very seriously. "Transfer of information in this area is totally dependent on us."

When he arrived at BCC in the fall of 1999, Gorman knew what subjects interested

BEST COPY AVAILABLE

him, but was not sure what he wanted to do. "I had no clue!" he laughs. "I liked computers and telecommunications. BCC was one of the only schools in the area that offered a fiber optics course." John Majkut, engineering chairperson at BCC, immediately noticed a drive in the new student that he knew would inevitably lead to success. "He arrived knowing that he wanted to pursue a career in telecommunications," Majkut says. More important, however, "He arrived knowing that he wanted to excel." From big dreams to real-world knowledge, Gorman feels that his experience at the community college has been "incredible—more than I ever expected." Preparing to graduate as a Commonwealth Honors Scholar in the spring of 2001, he acknowledges the importance of the supportive environment at a community college. "The student-teacher ratio is very important to me. I need to work closely with the professors," he says. "At BCC, they encourage us and help us succeed." The outstanding student-teacher ratio has also had the unexpected result of ensuring increased faculty attention. "I've actually had professors call me at home when I missed one day of class! They take a personal interest in every single student here." If he had it to do all over again, what educational option would Gorman pursue? "I'd come to a community college from the very beginning. I'm 100 percent sure of that."

His love of learning has not gone unrecognized. "Dustin is an enthusiastic student," says Majkut, "a pleasure to have in the classroom and technical laboratories. On more than one occasion I have observed him assisting his fiber optics professor during nonclass time," he adds, noting Gorman's dedication to the program. Gorman feels that he has learned to speak the language of telecommunications at BCC, studying everything from circuits to fiber optics. Lab sections "let me get my hands on equipment for experience that I couldn't get in a strict classroom setting. It's impressive that a community college has the equipment that is used in the field. I've had the chance to actually use the equipment, and understanding how it all works has prepared me to actually work in the business." He has also learned a valuable lesson through his internship. "In the lab, everything works perfectly," he laughs. "There aren't a thousand different things going on that you have to account for. The work for Verizon has really finished my education." Majkut agrees, "[Dustin] will certainly benefit from this real-world telecommunications experience."

"It's just impressive that a community college has the equipment that is used in the [telecommunications] field. I've had the chance to actually use the equipment, and understanding how it all works has prepared me to actually work in the business."

—Dustin Gorman, student
Bristol Community College, Massachusetts

Combining classroom, lab, and workplace familiarity, Gorman would like to "eventually contract to set up systems and design fiber optic and electrical connections." His Verizon internship helps pay for his tuition at BCC and allows him to prepare financially to attend the University of Massachusetts at Dartmouth. For students whose future might hold a career in telecommunications, he offers nothing but the strongest encouragement. "It's all become second nature with repetition and I love it more all the time," he says. "It's a lot of math and formulas, but it all pays off in the end. Technical jobs require a reasonable amount of education and offer good money." From an early academic fumble, Dustin Gorman has recovered and gone on to become a community college most valuable player.

Community College Is a Family Affair for Networking Student

Hosea Carter

Hosea Carter has always known how to stand out in a crowd. As the youngest of 21 children, the young man who describes himself as a "motivated self-starter" used that skill to become an outstanding computer networking student at Jones County Community College (JCJC) in Ellisville, Mississippi. Even here, however, he was following a family tradition. From an associate degree in nursing to a master's degree in music education, every Carter child has taken the first step toward higher education at JCJC.

Hosea Carter's first steps were rather tentative ones. "I was afraid of computers," he says, looking back to high school. He enrolled in a computer-based vocational class in 11th grade and quickly overcame that fear. "When I came to Jones, I had already decided that I was interested in programming, even though I had no technical experience," he says. "I decided that if I didn't like the field, at least I could get an entry-level job to support myself while I looked for something else." Instead, he discovered a passion for computers and technology that resulted in two degrees: the first in programming and the second in networking.

He found a job immediately after graduating from JCJC, and is currently employed by Computer Sciences Corporation as an application programmer. He manages the Electronic Data Interchange (EDI) hotline, a position created by the company to use his talents and the strong educational foundation they knew he had gotten from the community college. "Almost everything I know, I learned at Jones," Carter remarks. "When I compare myself with others entering the field, I think I was better prepared." Now a software engineering technology major at the University of Southern Mississippi, Carter expects to complete a bachelor's degree in August 2001.

Hosea Carter will earn his B.S. in software engineering technology from the University of Southern Mississippi.

Student: Hosea Carter

Institution: Jones County Junior College
Ellisville, Mississippi

URL: www.partnership.jcjc.cc.ms.us

Field: Computer Networking

ATE Project: Southeast Consortium for Advanced Network Technology Education

For students in JCJC's computer networking program, education is more than just traditional classroom assignments. Through a grant from the Advanced Technological Education program of the National Science Foundation, the networking curriculum has been designed to include realistic preparation for the business

BEST COPY AVAILABLE

Hosea Carter (back row, far right) is the youngest of 21 children, all of whom attended Jones County Junior College.

world. Three weeks of instructional time is dedicated to the skills that are required to get a job. "We work with them on résumés, interview skills, dressing for a professional environment, and how to conduct a job search," says Catherine Cotten, project director for the program. The college also arranges paid work-based learning opportunities for which students receive college credit. Using the largest group of supervisors for a single program in the state, JCJC sets rules for its participating companies and enforces them. Pay must be more than minimum wage and work must apply to the learning focus of the program.

Graduates have experienced glowing success, according to Cotten. "Once our students get hired at local companies, those companies immediately want more of our students," she explains. Networking program alumni also play an important role, revisiting the college every two years for a special evening of dinner and evaluation. "We ask them what's going on in their particular companies, what we are doing that has served them well and what we can change to keep up with the latest advances," notes Cotten. The alumni also serve as contacts for new graduates. "Once we get students hired at a business, they open the door for other students to follow," she says. Doors have now been opened by alumni who have taken positions in over half of the counties in Mississippi and in 14 other states as well. As a result of these coordinated efforts and the visibility of the program, enrollment rose from 105 students in 1997 to more than 250 in 1999.

Carter holds himself up as "proof that what they're doing at Jones works." In addition to the technical courses, he feels that the communications skills that he learned there have been essential to his success. "Never underestimate how important basic classes can be," he advises. "Freshman Composition II, for example, taught me how to write business-related documents. My job is about more than just sitting at a computer; it's also about communicating information to management in an articulate way so that they can make decisions. My communications skills—both verbal and nonverbal—were things that I learned at JCJC."

"Almost everything I know, I learned at Jones County Junior College. When I compare myself with others entering the [information technology] field, I think I was better prepared."

—Hosea Carter, application programmer
Computer Sciences Corporation, Mississippi

There were times when Carter faced challenges in his education. "At one point, I was taking 14 hours and working three different jobs to get through school," he remembers. "My advice to other students is to persevere. Even when it's tough, even when it's harder than you expected, the end result will be well worth it. If I could do it all over again, I would definitely go to a community college and I would definitely go to Jones."

Carter envisions a future position as an information technology manager. "I would love to work in e-commerce," he says, adding that this will also be the topic of his research and senior project. "E-commerce is the direction that technology and programming are headed in." With "lots and lots of family support," Hosea Carter is headed toward success.

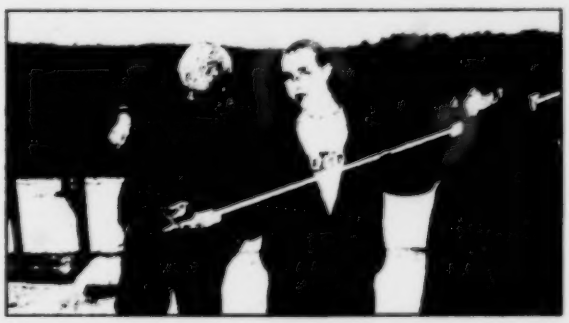
Technical Student's "Black Magic" Sends a Clear Message in Vermont

Damien Thibault

By night, he revels in the sounds of "Children and Chainsaws" or "Chin Ho!" but by day, he's an unassuming student. With an interest in these alternative music groups and a passion for telecommunications, Damien Thibault was able to combine the two while a student at the Center for Technology, a vocational-technical high school in Essex Junction, Vermont, that serves as a partner school for the Northeast Center for Telecommunications Technology (NCTT). The school is a testing site for curriculum being developed through a grant from the Advanced Technological Education program of the National Science Foundation. After graduating in June 2000, Thibault entered Vermont Technical College (VTC) to pursue a major in electrical engineering.

Joe Casazza, a telecommunications instructor at the Center for Technology had an interesting assignment to offer his students. "We were installing an amateur radio station at the school and had to install two antennae systems," he recalls. "Damien was the team leader on this project. He developed an antennae theory that we call 'black magic'—applying theoretical math principles to a real problem. It was almost like he pulled the solution out of thin air."

While studying at the center, "Thibault developed a strong interest in radio communications, strong enough that he went on to get his FCC license as an amateur radio operator," the instructor says. He also became licensed in Morse code transmission, an accomplishment



Damien Thibault (center) works on an antennae system for a radio station at the Center for Technology.

Student: Damien Thibault

Institution: Center for Technology
Essex Junction, Vermont

URL: www.nctt.org/indexnet.htm

Field: Curriculum Development/
Telecommunications

ATE Center: Northeast Center for
Telecommunications Technology

Casazza calls "very rare these days. Damien Thibault is extremely cerebral, takes the initiative, adapts readily to new techniques, is an excellent team player, and is highly regarded by peers and faculty. The one word that truly describes him is 'outstanding.'"

A future career in telecommunications has come as a pleasant surprise to this young man

BEST COPY AVAILABLE

who describes himself as "reserved, with a good sense of humor." During his junior year in high school, Thibault was "choosing courses and a friend of mine told me that he was looking into this program. I liked the class description and signed up after a [site] visit. I have liked it much more than I first realized I would. I had never planned to pursue this at first, but everything has changed!"

He also recognizes the progress he has made since entering the course. For two summers he worked for a general contractor wiring houses and factories. "Last summer, I knew almost nothing!" he laughs. "Now I understand what volts are and where different things go and why you need three wires. It's a big difference between the two years," a difference that he attributes completely to Casazza's class and influence. Thibault's future, he says, will include an associate degree from VTC and a bachelor's in electrical engineering. He would like to work with "small circuitry—nothing on a large scale." "I have no doubt that he's well positioned," says Casazza. "He understands the greater role that wireless technology will play in telecommunications. Damien's chosen an area that's on the cutting edge of what's going on and one in which there are not too many experts."

"We were installing an amateur radio station at the school and had to install two antennae systems. Damien was the team leader on this project. He developed an antennae theory that we call 'black magic'—applying theoretical math principles to a real problem. It was almost like he pulled the solution out of thin air."

—Joe Casazza, telecommunications instructor
Center for Technology, Vermont

One of Thibault's other beneficial choices was the decision to attend a two-year institution. "The most important reason that I wanted to go to VTC was because it's a good college," he says. "I also wanted to attend a college that specifically addressed my interests. At VTC, most of the programs are centered on technology. I like that the college is small and I can have more personal relationships with the faculty, too." He looks forward to the opportunities that the more advanced college education offers. "I'm very excited about getting into the labs. High school was more theoretical, while college will let me combine theory with the more detailed knowledge that I want. I want theory and hands-on." Thibault's advice for other students considering similar paths is simple: "Stick to it! Open your mind and learn all that you can."

While in the Center for Technology's program, Casazza's top student says he learned more than just the technical aspects of the field. "It was a class with quite a diverse group of people, so I had to deal with people outside of my usual friendships and those who were different from me. I've grown more comfortable around people I don't know, and I've learned that everyone has his or her own quirks that I need to decide how to work around." Teamwork and appropriate behavior for a business environment were also taught in Joe Casazza's classroom. "He really prepared me for what to expect on a job," Thibault acknowledges.

From the world of telecommunications to *www.bigheavyworld.com*, the Web site where Thibault promotes the local music scene, his interests vary but his commitment remains unchanged. "He's a fine young man," says Casazza. "His style and ability set him apart. He steps outside the normal horizons to look at creative solutions. If I had a business, I'd hire him in a second." For Damien Thibault, "alternative" is more than just his preferred music—it's a way of thinking and a technique for approaching life.

Breaking Down Barriers, Teaching the Teachers

Devan Whitley

Ever think, as a student, that you could teach your teachers a thing or two? Devan Whitley did—and she was right. As a summer intern for the American Association of Physics Teachers (AAPT), the Snead State Community College student compiled and analyzed data that are instigating reform in physics education for community colleges across the country.

The Two-Year College in the Twenty-First Century: Breaking Down Barriers (TYC21) project, funded by the Advanced Technological Education program of the National Science Foundation, began in 1995 as a networking project to bring two-year college physics instructors together. With more than half of the nation's college freshmen attending community colleges, AAPT recognizes that two-year colleges play an important role in physics education.

One of the primary goals of the project was to "empower two-year college physics teachers as a new, but experienced, voice in the national physics community," says Mary Beth Monroe, project leader. "Most community colleges have one full-time physics faculty member. They can be isolated from other instructors on their campuses and from physics teachers at other colleges." Instructors, according to the AAPT, need to form a network to share successful techniques and provide encouragement and support for colleagues. To address this need, the country was divided into 15 regions, each holding semiannual meetings from which reports were compiled. Details of more than 100 such conferences were completed at the end of the project's four-year term.

Devan Whitley (seated right) talks with Gerhard Salinger as she works the registration table at an AAPT meeting.

Student: Devan Whitley

Institution: American Association of Physics Teachers, Hagerstown, Maryland

URL: www.aapt.org

Field: Physics

ATE Project: The Two-Year College in the Twenty-First Century: Breaking Down Barriers

Completing the project required someone to patiently sort through stacks of information, organize it into usable data, and then analyze it for final evaluation. Monroe consulted Phi Theta Kappa, the international honor society of two-year colleges, knowing that it coordi-

BEST COPY AVAILABLE

nates a summer intern program for its student members with various agencies in Washington, D.C. "Rod Risley, the society's executive director, helped us to locate a pool of talented, capable students from whom we could choose," says Monroe. "We chose Devan because of her strong interest in this field and because she is a science major." The program offers benefits to both the organization and the student, according to Risley. "Phi Theta Kappa established a summer intern program in Washington, D.C., to accomplish two objectives. First, to acquaint leading national association and federal policymakers with the needs, talents, and valuable perspectives of community college students. Second, to provide Phi Theta Kappa members with the opportunity to participate in the development and implementation of federal public policy and experience the many wonderful cultural opportunities found in our nation's capital."

Whitley, now a chemistry major at Auburn University, remembers those first days as an intern. "I had no idea what to expect," she laughs. "I just had to be willing to try something new, to stretch myself and be open to new ideas and approaches. I learned so much as an intern by helping the AAPT work on its NSF grant. AAPT showed me how grants are proposed and submitted and what it takes to complete a program. I could not have gained this knowledge without the internship." As a result of her experience, this 20-year-old has planned not only a first career, but a second one as well. "I'd like to go into pediatrics," Whitley says. "Then I will teach chemistry at a community college." Not surprisingly, she noted that she "will definitely be applying for NSF grants" in that second career.

Whitley's experience with the internship was an overwhelmingly positive one. "I would definitely do it again!" she says. She was able to attend an AAPT meeting in San Antonio, to write a front-page article on the organization's national conference for the AAPT's newsletter, and to give a final report on her project in the Capitol building. For other students considering a similar opportunity, her advice is to "stretch yourself. Be willing to try something new and be open to different ideas and paths." Whitley is equally enthusiastic about her decision to attend a two-year college first. "I could have attended a university, but my brother and sister encouraged me to go to a community college." Both had attended four-year institutions and felt that the smaller class size and lower tuition fees at a community college would be beneficial to Whitley. "They were right. Snead State let me get my feet wet to see how I'd fare in higher education. Starting out in a smaller environment was a great stepping stone to something larger for me."

"Snead State [Community College] let me get my feet wet to see how I'd fare in higher education. Starting out in a smaller environment was a great stepping stone to something larger for me."

—Devan Whitley, student
Auburn University, Alabama

TYC21, too, benefited from Whitley's internship. "She helped us to create a network of over 500 physics instructors," says Monroe. Devan's perspective was an asset. "She understood that this program could impact teaching reform and could make a significant difference in the classroom. She brought closure to the entire project." Whitley's findings are going to be included in a book, written by the project's leaders, to be published in 2001. As she sits in her next physics class, Devan Whitley may know something that her professors do not. She knows that there is a network to support their efforts and to empower physics teachers on all levels. If she has her way, her work will make sure that they, and the rest of the educational world, know it too.

Combining High School, College, and Career Gives Student Early Lead

Katherine Carter

The old adage, "the early bird gets the worm," has held true for student Katherine Carter. While most young people her age spent their Saturday mornings lying in bed or hanging out at the mall, she got up early to go to class, a choice that's giving her an early start on a great career. She completed an advanced studies program, received several certificates and certifications, and landed a prestigious job with the Detroit Public Schools—all while she was still in high school.

During her freshman year at Cass Technical High School, Carter took Randall Raymond's biology course, and later enrolled in his chemistry class. After learning that Raymond taught a Geographic Information Systems (GIS) course on weekend mornings, she debated whether to give up her Saturdays. Raymond "convinced me," she says. He had a reason for being so persistent. Carter's enthusiasm for learning and willingness to become involved in extra learning opportunities made her a perfect candidate for the advanced studies program, according to Raymond. This National Science Foundation-funded community-based program, initiated at Henry Ford Community College, integrates GIS field experience into high school curricula. It also prepares undergraduate students in community colleges and regional universities for careers using complex GIS technologies. It "involves students in learning how to use GIS systems in the context of investigations in their urban environment," according to Raymond.

Katherine Carter started her Geographic Information Systems (GIS) training while she was in high school.

Student: Katherine Carter

Institution: Henry Ford Community College
Dearborn, Michigan

URL: www.henryford.cc.mi.us

Field: Community-based Geographic Information Systems

ATE Project: A Work/SITE Alliance: Community Based GIS Education

The Internet environment required for the course was completely foreign to Carter when she began the program. "During the first class, he talked about the technology that we would be using and he had us look at a Web site. At the time, I had never been on the Internet and had no clue as to what I was doing," she recalls. "After a while, I caught on and became really interested in the class." So interested, in fact, that she has taken the class for the last three years to learn more about the field.

Reflecting on those three years, Carter sees the experience as having provided a prac-

BEST COPY AVAILABLE

tical education that she could not have received anywhere else. She came to understand "how to actually apply things learned in the classroom to real-life situations. I also learned how to deal with many types of people, often at the same time." Raymond feels that his students "have learned that there are great rewards for individuals willing to get involved and work hard." He quickly credits his students' successes to their own diligence, however. They "have developed into professional entry-level GIS technicians as a result of their efforts."

"[Katherine Carter's] willingness to go above and beyond has had a significant impact on the program leaders, teachers, and students."

—Randall Raymond, teacher
Detroit Public Schools, Michigan

Carter gave as much to the program as she gained, according to Raymond. "It is difficult to describe the real value that exceptional students bring to programs that allow [them] to develop their true potential," he explains. "She has openly shared her learning and work experiences with a vast audience." In making presentations at local, state, national, and international meetings, "she has never questioned whether a particular experience was needed—she just rolls up her sleeves and gets down to work." In the end, he notes, "her willingness to go above and beyond has had a significant impact on the program leaders, teachers, and students."

Now working as a GIS technician, Carter is a member of the Facilities Management Department team for the Detroit Public Schools (DPS). This group "is responsible for the building of 69 new schools and 50 whole-school renovations as part of a $1.5 billion capital improvement program," says Raymond. The project, scheduled to last seven years, "requires a lot of spatial analysis where GIS skills are essential." Carter will soon be moving to a new position with the DPS Capital Improvement Plan. She was also hired as a student intern for the summer of 2000 to assist with teacher workshops associated with the community-based GIS program.

Carter plans to work full-time while continuing her technical emphasis at Lawrence Technical University, an institution that offers both two-year and bachelor's degrees. She will major in computer information systems (CIS) with a minor in computer programming or computer science. "I'm not sure what my long-term goals are," she says. "I just plan to follow this technology and see where it takes me."

Raymond believes that Katherine Carter's early start in the program will allow her to achieve great things. She "has been associated with individuals who willingly devote their time for the betterment of their community. These lessons will go with her and I am confident that she will return back to any community significantly more than she has ever received." He adds, "I am certain that whatever she chooses to do in the future, she will do with great success."

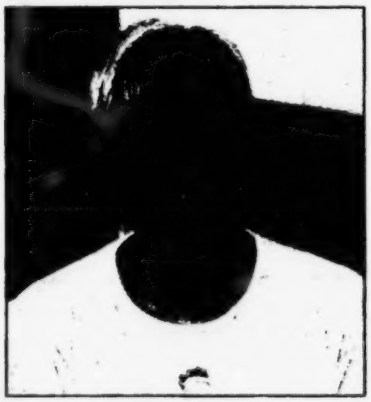
More than a Change of Habit: Student Cleans Up the Environment

Kathleen McLaughlin-Girelli

Kathleen McLaughlin-Girelli is concerned when "people don't think" about the consequences of pollution. "[Pollution] affects everything from water and land to your tax dollars," she says. An interest in health and safety training and her conversion to greater ecological awareness both resulted from a single opportunity: a summer internship through Cape Cod Community College (CCCC) at the Massachusetts Military Reservation Superfund (MMRS) site, Cape Cod's most serious environmental threat.

The connection between CCCC and MMRS is a beneficial one, not only to college students like McLaughlin-Girelli, but also to local high school students. Mary Jane Curran, director of the Southeastern Massachusetts Advanced Technological Education Project in Environmental Technology Education, recruits interns from the college to serve at community sites like MMRS. Her program, funded by the Advanced Technological Education program of the National Science Foundation, also provides experienced interns to serve as mentors for local high school students interested in the field.

Every minute at MMRS, according to Congressman Bill Delahunt, "literally thousands of gallons of water in the sole-source aquifer beneath Cape Cod will become contaminated by pollution emanating from [the site]. The activities which caused the problems stopped long ago, but their effects, regrettably, live on—and pose a direct threat to public and economic health."



Kathleen McLaughlin-Girelli enjoys sharing her passion for environmental technology.

Student: Kathleen McLaughlin-Girelli

Institution: Cape Cod Community College
West Barnstable, Massachusetts

URL: www.capecod.mass.edu

Field: Environmental Science

ATE Project: Southeastern Massachusetts Advanced Technological Education Project in Environmental Technology Education

At first, Kathleen McLaughlin-Girelli might not have seemed like someone who could make a difference in solving such a considerable problem. One of nine children, she grew up in a depressed area of Boston, married early, and became a full-time mother of two. Life changed dramatically when her husband left her to raise the children alone. She became a certified nurse's assistant and struggled to survive financially until a back injury forced her to

BEST COPY AVAILABLE

reconsider her career options. "She needed to find something to do, and that brought her to Cape Cod Community College," says Curran. McLaughlin-Girelli entered the college as a part-time student pursuing a nursing degree. "Anatomy and physiology brought me into the science building," she remembers, "but I discovered that I wasn't really a microscope and lab type of person."

She was, however, exactly the right type of person for an internship at the site's Environmental Technology Center. "Kathleen can take a challenge and educate herself on what she needs to do to be part of a larger solution," according to Curran. As McLaughlin-Girelli began to consider the needs of the site and the community, she faced her first challenge: finding the most effective use of the federal money allocated for training. After visiting similar programs across the country, she made an unconventional decision to head the training herself. "I started working with trainers, vendors, instructors, and other students. We built a training program from the ground up, tailored to meet the needs of our community," she says.

Eventually, the funding for her program at the site ended. Community outreach had taught McLaughlin-Girelli that there were still many unmet needs, so she moved her efforts to the college's Workforce Education Resource Center. She works with area groups, community colleges, and universities to set up the training, ensure environmental safety, and avoid the severe fines imposed by the EPA for noncompliance. Lois Andre, her supervisor, says, "She already understood how training works as a result of her internship. She learned how to make things happen, how to sell the benefits of training, and how to have a 'let's just go—let's do it!' attitude."

McLaughlin-Girelli's efforts in the community reflect that attitude. "Internships are a gift of someone's time and expertise," she says. "People have invested in me and helped me, and I want to pass that along." She has served as a mentor to high school students within the program. "Several of them have decided to attend community colleges too, which pleases me."

"[My experience at Cape Cod Community College] has made a huge difference for me. It's shown me that I have something to offer."

—Kathleen McLaughlin-Girelli
former student
Cape Cod Community College, Massachusetts

Her own experience at Cape Cod Community College has "made a huge difference for me," she says. "It's shown me that I have something to offer." She encourages anyone considering postsecondary education to consider attending a two-year institution. "Don't look at challenges that might keep you from going back to school. Everything else will fall into place after you set your priorities."

Remarried and a full-time student now, McLaughlin-Girelli's perspective has changed as a result of her work. "I'm much more environmentally aware and responsible. I carry my own bags to the grocery store, I cut down on cleaners and I don't throw away anything that can be recycled." Her example has had an impact. All three children in her family are not only committed ecologists but also community college students.

McLaughlin-Girelli would love to focus on database development in the future. "In environmental work, the information technology aspect is important for tracking what is being done," she says. Andre comments, "Kathleen has a commitment to making things better than when she found them—environmentally, organizationally, in every way." Her commitment has bettered local high school students, her community college programs, the Superfund site, and her own family. Next step? "I have a lot of life experience and I'm always ready for an adventure," she laughs.

Multimedia Program Opens Up New World to Globetrotting Student

Roger Chatelain

Roger Chatelain traveled three continents searching for the challenge that would change his life. He found that challenge in the Multimedia Programming and Design program at Borough of Manhattan Community College (BMCC). "I decided to follow my dreams and come to America to learn my craft," he says. Now the recent graduate feels "completely prepared" to play a key role in the "digital revolution."

Born in Zambia and raised in Switzerland, Chatelain describes himself as a "video game freak" who knew from the age of nine that he would one day combine his interests in technology and art. "I was just naturally interested in this field," he says. Despite his interest, however, he nearly left the United States before he was aware that the program existed. "I had decided to go back to Switzerland when I learned that a new major [multimedia] was going to be opened at BMCC. I decided to stay."

Much of the credit for his staying goes to Alice Cohen, chair of BMCC's Department of Computer Information Systems and head of the project. It was Cohen who first proposed multimedia courses to Chatelain, now a video production specialist. "He was a student seeking entry into a computer literacy course," she remembers. Enrollment for all of those classes had been closed after preregistration, making them unavailable. "I suggested Introduction to Multimedia as an alternative."

Multimedia jobs in New York City alone increased 105 percent from 1995 to 1997, with between 40,000 and 120,000 new jobs projected by the end of 2000. Because of the increasing number of positions in the area, Manhattan has come to be known within the industry as Silicon Alley. "It is our intent," Cohen says, "to provide

Roger Chatelain plans to explore novel application possibilities for the Internet.

Student: Roger Chatelain

Institution: Borough of Manhattan Community College, New York, New York

URL: www.bmcc.cuny.edu/inthenews/mm-programming.html

Field: Multimedia

ATE Project: BMCC ATE Partnership in Multimedia Programming and Design, Borough of Manhattan Community College

BEST COPY AVAILABLE

students who traditionally do not have access to such technology with the skills needed to enter this growing industry."

A unique multidisciplinary effort, the development of BMCC's multimedia curriculum was made possible through a project funded by the National Science Foundation's Advanced Technological Education program. The curriculum blends courses taught by the departments of Computer Information Systems; Music and Art; and Speech, Communications, and Theater Arts. Core multimedia and computer classes are combined with typography and advertising design, as well as courses from the corporate and cable communications program. "Very few colleges are doing what we're doing," states Cohen. The diversification that has been the program's strength came as a result of Cohen's personal experience in the field. "What I found in working with a group of multimedia designers was that I had the computer experience, but no artistic skills. Others who came from a design background had the artistic skills but very little programming experience. This degree program addresses those deficiencies. It's a perfect mesh."

"I had decided to go back to Switzerland when I learned that a new major [multimedia] was going to be opened at BMCC. I decided to stay."

—Roger Chatelain, former student BMCC, New York

From the beginning, Chatelain found that the multimedia community was a perfect mesh for him, too. He was one of the first two declared majors in the new program, and enrollment in multimedia courses was often too low for classes to fill. Refusing to be discouraged, Chatelain took the initiative to work independently with a faculty member to complete the degree requirements. Much of the education he received was outside of the technical skills taught at BMCC. "I learned to deal with deadlines and with the comments of the customer. After all, the customer is always right!" he laughs.

A deep knowledge of different software, artistic ability, and patience are three of the traits he feels students pursuing a multimedia career should possess. "Most of all, though, you need to have a passion for this field. You sometimes have to spend all day in front of the computer," he says. "Artistic eyes and ears" are prerequisites.

In examining the choices that he has made, Chatelain would "without a doubt" attend a community college again. "It is affordable and the faculty and staff are supportive and knowledgeable. I think it is really worth it." Cohen also feels that the community college experience made a real difference for this student, who graduated from the program with a 3.9 GPA. "He had the opportunity to learn other software and work in an environment where he was immediately cast as a team player," she says.

"My wish is to combine my skills (multimedia authoring software, digital video, film, and music) with the emergence of broadband connections to explore novel application possibilities for the Internet," Chatelain says of his future goals. That is certainly possible, according to Cohen. "Our students are wonderfully talented and hopefully will be able to bring their own unique perspectives to the industry." Having traveled the globe to follow his dreams and find his career niche, Roger Chatelain will have his own unique perspective to offer.

About the Authors

Tim Ashlock and Stephanie Wright

Tim Ashlock graduated summa cum laude in May 2000 with an associate of arts degree from Jefferson College in Hillsboro, Missouri. While at Jefferson, Ashlock earned the Board of Trustees Scholarship and the Elizabeth Hoyt Clark Scholarship, awarded annually to the top student in the college's honors program. In March 2000, he was recognized by the Missouri legislature, Phi Theta Kappa, and the Missouri Association of Community Colleges as the top scholar in Missouri community colleges.

Ashlock was selected to the first team of the 2000 All-USA Academic Team, sponsored by *USA Today*, Phi Theta Kappa, and the American Association of Community Colleges. Only 20 scholars from around the nation receive this prestigious award each year. Two students from each participating community college are eligible to be nominated for the All-USA competition. The selection process is conducted by an independent panel that selects the team on the basis of the academic success of the nominees as well as the degree to which the nominees have involved themselves in community service and extracurricular activities at their institutions. Ashlock was selected from more than 1,400 nominees.

Ashlock's contributions include serving on the board of directors of his county's Growth and Development Association and serving as a head delegate to the Midwest Model United Nations, where he was a delegate to the biological and chemical weapons committee, earning the "best delegation" award among more than 60 teams from midwestern colleges and universities. He has also served as a student senator for his community college, volunteered to mentor at-risk youth with the Juvenile Justice Department, volunteered for the American Red Cross, served as a chemical and benthic analysis volunteer with the Missouri Stream Team, volunteered as a tutor for his local middle schools, served as an instructor for America Online's Research and Learn Math and Science rooms, and tutored his peers in multiple subject areas for his community college. Ashlock also served the Missouri Region of Phi Theta Kappa as vice president.

Tim Ashlock and Stephanie Wright give a presentation at the ATE National Principal Investigators Conference in Washington, D.C.

Out of 1,400 eligible applicants, 19 of those who were nominated for the All-USA Academic Team were chosen to represent Phi

"My internship with the National Science Foundation laid the groundwork for a successful future, affording me the opportunity to get involved within the scientific community at the national level. While interning at NSF, I learned a great deal about our country's commitment to scientific, mathematical, and technological education. In addition, I have had the privilege of communicating with a number of successful students from two-year institutions who often overcame tremendous adversity on their rise to the top. Their stories have been personally inspiring to me. My hope is that our readers will likewise enjoy learning of the successful examples these scholars have set, and of NSF's tremendous impact on the lives of individual students by creating real opportunities for students from all walks of life to succeed."

—Tim Ashlock

Theta Kappa for an 8-week internship. The honor society's 8-week program matches selected interns with 11 prestigious associations and agencies in the nation's capital. Ashlock, a biochemistry major, was selected as one of two interns for the National Science Foundation. He is presently continuing his education at Washington University in St. Louis. Ashlock has his sights set on medical school, where he hopes to earn an M.D./Ph.D. specializing in adolescent medicine while focusing on virology research.

Stephanie Wright graduated in May 2000 with associate of science degrees in both biology and chemistry from Tulsa Community College (TCC), receiving highest honors in both majors. While attending TCC, she was named a Nigh Scholar and a Bovaird Scholar, and received the Honors Program Scholarship twice. Wright has been included in *Who's Who among American Community College Students* and honored as one of the top young Native Americans in the country. In May 2000, she was named a Udall Scholar, an honor awarded to only 80 community college and university students across the country in recognition of their dedication to public service.

A member of Phi Theta Kappa, Wright was elected by her fellow scholars to serve as 1999–2000 international president of the society, the 71st student in the more than 80-year history of the organization to hold this position. During her highly successful term in office, Wright met with General Colin Powell to forge a bond between the society and America's Promise: The Alliance for Youth. A nationally recognized advocate for children's literacy, she was invited to sit as the only student panelist for the nationally broadcast March 2000 Satellite Town Meeting led by U.S. Secretary of Education Richard Riley and to join a panel for the America Reads Challenge broadcast from the University of Vermont. Within Oklahoma, she has worked with the governor and the state legislature to

"Having an inside view of the National Science Foundation has taught me not only about the agency, but also about the ideals of responsibility that it promotes on a national scale. Those of us who would be students of science have an obligation, I have realized, to promote and nurture others who would aspire to progress in this field, and it has been my great privilege to witness the NSF's commitment to doing just that. I have been moved and inspired by the stories of students from across the nation who have been affected by ATE programs. Some were early successes, some needed a second chance, but all have been transformed significantly by their association with these programs. Through its support of technology education, NSF has changed the lives of these students. By allowing me to share a summer with NSF, it has changed my life as well."

—Stephanie Wright

---

encourage increased funding of higher education, particularly community colleges.

As an undergraduate student, Wright received a grant from the Howard Hughes Institute for her study of antibiotic-resistant bacteria. That same field of interest gave her the opportunity to serve a summer internship in the research labs at the Oklahoma State University College of Osteopathic Medicine. A member of the Oklahoma Academy of Science, Wright has presented her findings at the academy's annual meeting.

Wright's involvement in her community includes sitting as a member of the board of directors for Interfaith AIDS Ministries and serving as a tutor and mentor for at-risk middle school students in low-income areas. In just the past year, she volunteered more than 500 hours in programs teaching elementary school children to read. Her work with numerous public service agencies from the Red Cross to the United Way led to the governor of Oklahoma proclaiming April 29, 1999, as Stephanie Wright Day for the entire state.

A biochemistry and premed major, Wright is currently attending the University of Tulsa. Upon completion of her bachelors of science degree, she plans to attend the OSU College of Osteopathic Medicine and eventually hopes to practice medicine within the Indian Health System in Oklahoma, serving low-income families.

Index

A

Academy for Creative Technologies (ACT): Pasadena City College, 3-4
Advanced Technology Environmental Education Center (ATEEC), 27, 28, 29, 30
Africa: lion study project, 17, 18, 19
All-USA Academic Team, 2000, vii, 47
Allison, Rick, 1; quoted, 1-2
America Online: Research and Learn Math and Science Rooms, 47
America Reads Challenge, 48
American Association of Physics Teachers (AAPT): Hagerstown, Md., 39-40
American Red Cross: volunteers, 47, 49
America's Promise: The Alliance for Youth, 48
Andre, Lois: quoted, 44
Animal behavior studies, 17-19
Antarctica: bicycle for (Ice Prowler), 9-11
Arizona Department of Environmental Quality (ADEQ), 30
Arizona Department of Transportation, 30
Art Institute of Pittsburgh (AIP), Pittsburgh, Pa., 9-11
Ashlock, Tim, vii, 47-48
Atwood, Wade, 15-16
Auburn University, Ala., 40

B

Banking industry, 29
Behara, Travis, 1-2
Bell Atlantic (Verizon), 33, 34
Bellevue Community College, Bellevue,Wash.: Information Technology Program, 21-22
Bicycle, specialty (Ice Prowler), 9-11
Boor, Nick, 9, 10
Borough of Manhattan Community College (BMCC), New York, N.Y., 45-46
Bovaird Scholar, 48
Brijbasi, Denise, vii-viii, 17-19
Bristol Community College (BCC), Fall River, Mass., 33-34
Burruss-Myers, Laurie: quoted, 4
Butler, Steven: quoted, 10-11

C

Cameron, Dolores, 3-4
Cape Cod Community College (CCCC), West Barnstable, Mass., 43-44
Carson, Robert (Bob), 31; quoted, 31-32
Carter, Hosea, 35-36
Carter, Katherine, viii, 41-42
Casazza, Joe, 38; quoted, 37-38
Case, Brian, viii, 9-11
Cass Technical High School, Detroit, Mich., 41
CD-ROMs: SCANS 2000 Project, 31-32
Center for Astrophysical Research in Antarctica (CARA), 9, 10, 11
Center for Technology, Essex, Vt., 37-38
Chatelain, Roger, 45-46
City University of New York, N.Y.: Borough of Manhattan Community College, 45-46

Citysearch.com, 4
Clark, Elizabeth Hoyt, Scholarship, 47
Cohen, Alice, 45; quoted, 45-46
Colorado River, U.S.: pollution research, 30
Community-based Geographic Information Systems, 41-42
Computer networking, 35-36
Computer Sciences Corporation: employee, 35
Corbis.com: software developer, 21-22
Cotten, Catherine: quoted, 36
Cowan, Chris, 9, 11
Cunniff, Patricia: quoted, 18-19
Curran, Mary Jane, 43; quoted, 44
Curriculum development/communications, 37-38

D

Daytona Beach Community college (DBCC), Daytona Beach, Fla., 25-26
Delahunt, Bill: quoted, 43
Department of Labor, U.S.: Secretary's Commission on Achieving Necessary Skills (SCANS), 31
Detroit Public Schools (DPS): Michigan, 41, 42
Distance learning projects: Maui Community Project, 23-24; Virtual Classroom Project, 25-26
Distinctive Manufacturing Technology (DMT) program, 1-2

E

Eco-technology, 17-19
Eder, Randy, 25-26
Electronics and instrumentation, 5-7
Electronics/computer networking, 25-26
Electronics engineering, 23-24
Engineering graphics, 5-7
Environmental health and safety, 29-30
Environmental science, 43-44
Essex Community College, Essex, Md., 15-16
Evans, Cindy: quoted, 14

F

Farrell, Bill: quoted, 9-10
Florence-Darlington Technical College, Florence, S.C., 5-7

G

Geographic Information Systems (GIS), 13-14; community-based, 41-42
Global Positioning System (GPS), 13, 18
Goin, Carl, viii, 29-30
Goin, Sylvia, 29; quoted, 30
Gorman, Dustin, 33-34
Graphic design, 3-4

H

Hagerstown Community College (HCC), Hagerstown, Md., 31-32
Hanebrink Bicycles, Big Bear Lake, Calif., 9
Harmeyer, Kathleen: quoted, 16
Harsh, Mike, 31, 32; quoted, 32
Henderson, Sakine, 25-26
Henry Ford Community College, Dearborn, Mich., 41-42
Historical Electronics Museum, Linthicum, Md., 16
Houston Community College (HCC), Houston, Tex., 13-14
Howard Hughes Institute, 48
Huntley, Mac, 5-7

I

Ice Prowler bicycle, 9-11
Indian Health Systems: Oklahoma, 49
Industrial design, 9-11
Industrial safety, 27-28
Information Technology Program: Bellevue Community College, 21-22
Interfaith AIDS ministries, 49
Internet and multimedia technology, 15-16

Internships: American Association of Physics Teachers, 39-40; Cape Cod Community College, 43-44; Florence-Darlington Technical College, 5-7; National Science Foundation, vii, 47-49

J

Jefferson College, Hillsboro, Mo., 47
Jones County Junior College (JCJC), Ellisville, Miss., 35-36

K

King Ranch, Tex., GIS use, 13

L

Lamar High School, S.C., 5
Landsberg, Randall H., 10
Lawrence Technical University, Mich., 42
Lewis, Cheyanne, 31-32
LiGwalaGwala Lion Project: South Africa, 17, 18, 19

M

Macdonald, Doug: quoted, 6
McLaughlin-Girelli, Kathleen, 43-44
McMillen, Janet, 18
Majkut, John: quoted, 34
Mantle, D. Ray: quoted, 5, 6
Manufacturing technology, 31-32
Maricopa Community College system, Ariz.: Paradise Valley Community College, 27-28, 29-30
Marks, Kate, 16; quoted, 16
Massachusetts Military Reservation Superfund (MMRS) site, Mass., 43, 44
Mathias, Elizabeth: quoted, 31
Maui Community College, Maui, Hawaii, 23-24
Maui Electric Company, Hawaii: Employee, 24
Microsoft: employee, 22
Midwest Model United Nations, 47
Missouri Association of Community Colleges, 47
Missouri Stream Team, 47
Monroe, Mary Beth, 39-40; quoted, 39, 40
Multimedia, 45-46
Multimedia and Internet technology, 15-16
Multimedia graphic designers, 3-4

N

Nan Ya Plastics Corporation, S.C.: internship, 5-6
National Aeronautics and Space Administration (NASA): GIS analyst, 13-14
New England Board of Higher Education: Boston, Mass., 37
Nigh Scholar, 48
Northeast Center for Telecommunications Technology (NCTT), Springfield, Mass., 33, 37
NorthWest Center for Emerging Technologies: Bellevue Community College, 21
Nye, Osborne, 13; quoted, 13, 14

O

Oklahoma Academy of Science, 49
Oklahoma State University (OSU): College of Osteopathic Medicine, 49; OSU-Okmulgee, 1-2
Osprey study, 18

P

Paradise Valley Community College (PVCC), Phoenix, Ariz., 27-28, 29-30
Parnell, Tori, 5-7
Parsons, Mike: quoted, 32
Pasadena City College, Pasadena, Calif., 3-4
Patuxent River, Md.: osprey study, 18
Peoples, Kelly, 27-28
Peoples, Malik, 27, 28
Perry, Jack: quoted, 22

Phi Theta Kappa (International Honor Society of Two-Year Colleges), vii, 16, 39-40, 47, 48
Physics, 39-40
Powell, Colin, 48
Prince George's Community College, Largo, Md.: Young Scholars Program, 17-19

Q

Quesnel, Charlie, viii, 23-24
Quinn, Bill: quoted, 30

R

Rapid-prototyping (RP) program, 1-2
Raymond, Randall, 41; quoted, 41, 42
Red Cross, American: volunteers, 47, 49
Resolution Trust Corporation (RTC), 29
Riley, Richard, 48
Risley, Rod, 40; quoted, 40
Ross, Andrew: quoted, 18
Roths, Kevin: quoted, 1, 2

S

Safety, Health, and Environmental Sciences (SHES) program: Paradise Valley Community College, 27-28
Salinger, Gerhard, 39
Savings and loan industry, 29
SCANS (Secretary's Commission on Achieving Necessary Skills), 31
SCANS 2000 Project, 31-32
Scholars 2000 program: Prince George's Community College, 18
Scott, Jeremy, 13-14
Secretary's Commission on Achieving Necessary Skills (SCANS), 31
Shepard College, W. Va., 32
SMI company, S.C.: internship, 7
Snead State Community College, Boaz, Ala., 39, 40
Software developer, 21-22
South Africa: lion study project, 17, 18, 19
South Carolina Advanced Technological Education (ATE) program, 5-7
South Pole: bicycle for (Ice Prowler), 9-11
Southeast Consortium for Advanced Network Technology Education: Jones County Community College, 35
Southeastern Massachusetts Advanced Technological Education Project in Environmental Technology Education, 43
State Savings Bank, Sofia, Bulgaria, 29
Suing, Joey, 3, 4
Surfing, 23

T

Telecommunications, 33-34, 37-38
Thibault, Damien, 37-38
Ticketmaster: Online-Citysearch Inc., 4
To, Anh Ngoc and Pang Van, 21
To, Jessica, 21-22
Treloar, Bob, 27, 28
Tulsa Community College (TCC), Tulsa, Okla., 48
Two-Year College in the Twenty-First Century: Breaking Down Barriers (TYC21), 39-40

U

Udall Scholar, 48
United Way: volunteer, 49
University of Arizona, 30
University of Central Florida, 26
University of Chicago, Ill., 9
University of Delaware, 17, 19
University of Massachusetts, 34
University of Southern Mississippi, 35
University of Tulsa, Okla., 48
University of Vermont, 48
U.S. Surfing Association, 23
USA Today (newspaper), 47

V

Verizon (Bell Atlantic), 33, 34
Vermont Technical College (VTC), Vt., 37, 38
Vietnam: refugee from, 21-22
Virtual Classroom Project: Daytona Beach
Community College, 25-26

W

Washington University, Mo., 48
Whitley, Devan, 39-40
Who's Who among American Community
College Students, 48
Wildlife studies, 17-19
Williams, Bob: quoted, 25, 26
Wright, Stephanie, vii, 47, 48-49

Y

Young Scholars Program: Prince George's
Community College, 17-19

American Association of
Community Colleges
One Dupont Circle, NW
Suite 410
Washington, DC 20036-1176
www.aacc.nche.edu

ISBN 0-87117-342-5

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

☒ This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").